

The MILLING WORLD

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DISC MILLS.

STIMULATED by the success of the roller mills, mill builders have recently introduced a new system to the profession known as disc mills, ring mills, etc., says *Die Muehle*. The principle of the many different variations of these machines is that either one disc is stationary and the other rotates, or both discs rotate. The outer margin of the disc is corrugated or dentated, and forms a sharp grinding surface, as in burr stones. There is nothing new in the principle, and only the construction is more or less careful or ingenious. These mills labor from the beginning under the disadvantage of stones, namely, the product remains too long between the grinding surfaces, as the feed does not pass the discs in a radial, but in a tangential direction, respectively in a long curve. The second disadvantage is the unequal feeding to the discs. As this proceeds from the middle, the grains desire to escape at the margin; if this is prevented, then certain places will be overloaded by an accumulation of the feed. A horizontal position of the discs would be more advantageous for this purpose, and ensure a more equal distribution of the feed, but then the resemblance between discs and burrs would become more apparent still.

The great advantage claimed for the discs is stated to be that the first break always splits the grain along the furrow. This, however, may be only an assumption, as it cannot be supposed that kernels, which are subjected to friction among themselves as against the discs, which are of unequal size, and the path of which cannot be positively prescribed, should always place themselves exactly in a longitudinal position in the corrugations of the outer disc. Of course a large number of kernels are split in this manner, but this is done also on well regulated rolls, and is largely due to the fact that the grains split with more ease along the furrow than crosswise. Such disc mills work more exact than stones with large grinding surface, but here they are surpassed by rollers where the actual working surface is reduced to the minimum of the line of contact between the rollers. Improvement in this direction seems impossible.

The quantitative capacity of the disc mills is attained by high speed. This would not be necessary if the path of the grain between the discs was less lengthy. The manufacturers claim that the grain leaves the break-surface as soon as split once. According to this the working distance would be equal to the circumference of the disc, for instance, a disc of 350 mm. diameter would have a working distance of about 1100 mm, equal to that of two pairs of rolls of 550 mm. length.

With 250 revolutions and 220 mm. diameter the break rolls have 172 m. speed of circumference. The discs with 3,000 revolutions and 350 mm. diameter, have 3297 m. speed of circumference, nineteen times as much. Consequently if the circumference of the disc is as effectual in its work as the roller, its capacity ought to be nineteen times as large. But we do not find it so. The capacity of the disc is no higher than that of the roller. The fact that the feed remains nineteen times as long between the discs as between the rollers demonstrates simply that it does not leave the surfaces in a radial direction, but in a long spiral curve.

The feed is subjected to unnecessary friction and is, in consequence, heated. That such is the case is seen in the ventilating fans, attached to every machine, to cool the feed, an application which is unnecessary in rollers.

Even if we ignore the power necessary to drive the fans, it must be plain to every miller that it is more advantageous to grind cool, than to have the feed heated, and then cool it again. We are told that the air current is also utilized to carry the feed upward towards the cylinders. But this seems a very questionable application. Wind is very useful in the transportation of light particles, such as dust from the grain or in the purification of the middlings, but in the transportation of feed which holds flour it seems hardly applicable. Then large filters will become necessary and will form very undesirable additions to the mill.

When an air current carries away the dirt and dust we have no objection, but when the finest flour is lost in a similar manner, we certainly consider it a lamentable waste. If the transportation of the products from the discs depend upon an air current, serious complications will occur at times, because the mill, in spite of everything, run a little slower for a few minutes once in a while. More serious consequences will arise if by some act of negligence or carelessness the disc rotating at 3,000 revolutions touches the stationary disc and allows the corrugations to come in contact with each other.

Finally, a large amount of power must be necessary to run the discs at such high speed, and additional attention has to be given to lubricating, belting, etc., and has to be considered as well if we intend to arrive at a fair estimate of this latest improvement in milling.

HOW WILL CHEAP WHEAT AFFECT THE NORTHWEST.

If the pessimists are right in their opinion that wheat-growing is overdone, that the sources of supply are henceforth to compete closely for possession of a dull market, and that consequently the decline in prices is to be permanent, it remains to ask how different grain-growing regions may be affected by these changed conditions, says the *Farmers' Tribune*. Obviously an early effect of unfavorable prices continued for two or three seasons will be a curtailment of acreage. Wheat in many parts of the country is an uncertain crop at best, but farmers have been tempted by high prices to devote considerable acreage to it. The area must inevitably shrink before a depressed market. If such a shrinkage should occur, where would it be found?

Calling the annual wheat product of the United States 500,000,000 bushels in round numbers, we may roughly estimate the crop of the winter wheat growing states at 350,000,000, and that of the spring wheat growing states at 150,000,000. Wisconsin, Minnesota, Dakota, Iowa, Nebraska, and the New England states grow the spring wheat, while the winter grain is raised in more than a score of states lying generally south of the 42d parallel. There are many reasons why a reduction in price should more sensitively disturb the production of winter than of spring wheat. The states which grow the winter grain are, largely in the

corn belt. Corn does not share in the depression which has overtaken wheat. Moreover, wheat in those states does not give a large average yield, and is always regarded as a hazardous crop. The great variety of crops which may be raised in those states renders it comparatively easy to forego the cultivation of wheat. In the more northern belt, on the other hand, wheat is the principal crop, and cannot lightly be discarded for any other product. Northern wheat will hold the market against southern because it has no alternative. But there are better reasons than that. Northern wheat can afford to undersell southern because it costs less. It is grown on cheap lands while the winter wheat, for the most part, is grown on high-priced lands. In the spring wheat states the crop is much more certain, and the average yield is much higher. Minnesota and Dakota wheat can be profitably sold at a figure which would signify loss in Illinois or Ohio. Just what that figure is, can be stated only approximately. Mr. Dalrymple claims that he can raise wheat in the Red River Valley and ship it to Duluth for 35 cents a bushel without absolute loss. Most northwestern farmers would estimate the cost of wheat a good many cents higher; but no one will for a moment claim that the cost of northwestern wheat approaches that of winter wheat in the older states.

But there is another circumstance in favor of the Northwest. The changes of the last decade in milling processes have revolutionized the grading of wheat, and the hard northern varieties are worth an average of eight or ten cents a bushel more than their competitors further south. This alone would turn the scale. The time has now come when the spring wheat states will rapidly augment their proportion of the entire product. Hitherto only a little more than one-fourth of the crop has been grown in these upper latitudes. The increase of transportation facilities which brings our wheat into more telling competition with the wheat of the older states is speedily to result in a shifting of proportions. There is much excellent wheat land in the Northwest yet to be brought under the plow; and the present episode of low prices will stimulate the production of hard northern wheat. The consumption of bread is not going to fall off; and the circumstances which will encourage southern wheat growing will, by that very token, encourage northern wheat.

THE WHEAT CROPS.

The Department of Agriculture at Washington, D. C., reports under Sept. 10, that the condition of cotton on the 1st of September was lower than on August 1 by reason of drought, which has been severest in Texas, yet felt in every state East and North to North Carolina. The apprehension that too succulent early growth would wilt under higher temperature and absence of rain has been realized too generally. Local areas on the Atlantic coast appear to have had sufficient moisture at a few points, too much on low lands. The effect of these meteorological changes has been the wide prevalence of rust and the shedding of leaves and young bolls. In light soils the fruiting will be hastened, the top bolls already forming. In those of greater moisture there is a strong weed, and, with deferred frosts, a good crop may be made.

There are few losses by the caterpillar. Where it has appeared it was promptly met by poisonous applications as a rule. The boll worm has been more abundant than usual and has not had treatment sufficiently prompt.

The average condition for the whole field, which was 87 in the preceding report, is reduced to 82½, though Texas is the only state below that average. The only years of the preceding ten having lower average in September were 1874, three and a half points lower; 1881, when the average was only 70, and last year, when it was 74. The weather of the next three months may modify for better or worse the actual result of the harvest. The state averages are:

Virginia, 89; North Carolina, 90; South Carolina, 87; Georgia, 86; Florida, 88; Alabama, 84; Mississippi, 83; Louisiana, 84; Texas, 72; Arkansas, 83; Tennessee, 90.

The product of Winter wheat is above the average, and is generally of good quality except where injured by sprouting in the stock. The rate of yield is not far from an average of thirteen bushels per acre. The results of the harvests of Spring wheat are not yet complete, and the product cannot be precisely indicated. It is probable from the reported condition of the crop already harvested and threshed that the aggregate will vary little from 500,000,000 bushels. The reports of much higher figures are sensational and misleading and utterly unworthy of credence.

The general average of condition when harvested is 98, against 83 last year. The condition is almost identical with that reported in September, 1879, the census crop, which yielded thirteen bushels per acre. The wheat states of highest condition are California, Wisconsin, Minnesota, Pennsylvania, Kentucky, Tennessee and Oregon. These, with some of minor production, show figures higher than the general average. Iowa, Nebraska and Kansas stand at 98; Ohio and Michigan, 96; Indiana, 94; Illinois, 80. The Eastern and Southern States range from 81 in Mississippi to 103 in Maine.

The corn crop is in better condition than in any September since 1880. The general average is 94. It was 84 last September, 83 in 1882 and 60 in 1881. It promises to produce an average yield of twenty-six bushels for the entire belt, or not less than 1,800,000,000 bushels. It will make the largest aggregate of quantity ever reported in the history of the country.

THE FUTURE OF THE UNITED STATES.

Professor John Biddulph Martin, F. S. S., of England, read an exhaustive paper entitled: "The Future of the United States," at the recent meeting of the American Association for the Advancement of Science at Philadelphia. The paper, of which we give the following abstract, was written for an English audience, but Professor Martin submitted it to an American one without change. Speaking of a tendency towards Free-trade, which the speaker alleged existed in this country, he said:

The United States have in the past subjected themselves, among other burdens, to that of a heavy Protection tariff, and the disappearance from the seas of its mercantile marine, with the extinction of its ship-building industry, is one of the most often

cited instances of the result of that policy. The recent modification of the customs tariff has marked a new economic departure, and if it be justifiable in principle, and be deemed anything more than a manoeuvre of party politics, it can hardly be considered otherwise than a first installment of entire commercial freedom. It cannot but be allowed that there was a certain plausibility in the contention that pending the reconstruction of the country, and the restoration of its finances, the United States were justified in giving encouragement to their citizens to found every variety of industry within their own borders, and that if they were willing to tax themselves with this object they were quite at liberty to do so; but a tax is a burden, to be removed at the first opportunity, and if a protection tariff be conceded to be this, then it is hardly disputable that its removal would be a relief, and that it is in spite of, and not because of, its fiscal policy that the country has prospered so marvelously in the past. It is not a little singular that we are now told that it is England rather than America that would suffer by the removal of import duties in the latter country; such is the opinion of Americans whose opinions are worthy of respect, and similar sentiments have been expressed by English politicians from whose lips one would least expect to hear them; in the meantime we have, on the one side, the English manufacturers, who have no such cares for the morrow, but are eager for the increased demand for their products that an open market would at once give them, and, on the other, the daily increasing multitude of American consumers who are not interested in any particular trade monopoly, and have no interest in paying dear for the advantage of a few.

He maintained that in America individual wealth is getting every day more difficult to acquire. He thought well of this, as it would prevent too much luxury on the one hand and a plethora of poverty on the other.

The universal pursuit of and interest in the "almighty dollar" that has been and is attributed to the citizens of the United States is possibly a not very much stronger passion in their hearts than in those of other people; but even if it be conceded, an explanation and excuse can easily be found. The explorers of a new country necessarily go there to make their fortunes, and the conditions for doing so in the instance of the United States were eminently favorable.

In spite of the evils proverbially attributed to wealth, no one will deny the advantage to the community that industry and exertion should have a fair chance of ample reward, but the risks attendant on the concentration of gigantic wealth in the hands of individuals are equally obvious. The boldness and audacity required for the acquisition of money will not fade away in the management of it when acquired, and the larger sum at stake, the greater temptation must there be to step across the delicately traced line that separates integrity from unscrupulousness. The Old World has marked with astonishment, not only the rapid growth of wealth in the hands of the millionaires of the New, but also the uses to which it has been applied; it has seen with astonishment great railway systems "controlled" by rival dictators, in entire independence of any board of directors, and without any reference to the wishes of the shareholders. The traveling public has indeed snatched an apparent benefit from the reckless "cutting" of rates, but it may be fairly doubted whether the community can derive real advantage when any of its main industries are doing bad business. Still more formidable have been the consequences of concerted action between the financial powers; a common attack on any of the great staples of commerce, such as corn, cotton, pork, even gold itself, is unknown, or almost unknown, except in the

United States, and its operation must in every way be injurious to the prosperity of the country at large. The fictitious wealth rapidly acquired during the period of inflated prices, disappears at their collapse, nor does even the consolation that attends pure gambling remain, that what is lost by one is gained by another; in speculation, the fairy gold of over-night is liable at any moment to be mere dry leaves in the morning. It does not seem unreasonable to suppose that, in proportion as the population of the United States increases, and the country becomes fully occupied, the rapid acquisition of wealth will become more and more difficult.

The forces which are necessary to produce a leisured class may be expected to have a wider influence in rendering the pursuit of fortune less feverish and more pains-taking, and in developing a leisured class content to rest satisfied with moderate wealth laboriously acquired, rather than ambitious to strive till life's end in pursuit of indefinite and often precarious riches. The formation of such a class on a considerable scale, would no doubt be of the greatest possible advantage to this country, and would, among other effects, tend to the elevation of the status of American literature, science and politics in a marked degree. It is not to be denied that the world already owes much to American literature and American science, and though this is not the place to discuss the extent of that obligation, or to compare the achievements of the Old World and the New in either department, it may be said that the most eminent American writers are those who are most deeply tinged with the genius of their English predecessors. The American nation is of all others the one most given to reading, but this reading is, to a great extent, that of ephemeral literature, and the appeal to newspaper statistics is not altogether a satisfactory proof of the education of the masses.

The Federation of the United States, based originally on the necessity for mutual assistance and support between communities strongly jealous of their individuality and independent rights, was widely different in its inception from the Federation of the United Kingdom, which may almost be said to have been gradually achieved during 1,000 years by right of conquest. Yet the result has vastly more points of resemblance than of dissimilarity; the founders of the Republic of the West could not divest themselves of old associations and usages. They could, indeed, mark their abhorrence of the "tyrants" of an hereditary dynasty by placing at the head of the state a president who, for the shortest convenient term, should be distinguished above ordinary citizens; but they found themselves constrained to give him many of the prerogatives of a king. They placed in his hands the command of the national forces by land and sea; and, while they reserved to Congress the power of declaring war and making peace, they placed in his hands an amount of patronage in civil and military appointments that in the hands of an unscrupulous man might be most formidable to the state; they gave him the right of veto over acts passed by the two legislative bodies. At the same time they organized an electoral system under which both the president and the two legislative bodies should be as far as possible representative of the entire community, from whom both alike derived their authority.

Politics in the United States must necessarily be taken up more as a career, a profession, than in England; the vast size of the country and the impossibility of combining, at Washington as can be done at Westminster, senatorial with professional engagements, justifies the system of paid representatives, but the mere emoluments of office are insufficient to attract to or to re-

tain in its service the best talent of the country, and the politician must needs become a party man, dependent on his own side for advancement and the benefits of the patronage which he hopes to dispense or to enjoy. The enormous volume of this patronage, and the dependence of the entire official element on the success of party tactics, appears to be one of the most objectionable features of the present state of political affairs. The vast body of office holders are constrained to elaborate a scheme of organization that shall keep their party in power; the still larger army of place-seekers is equally bound to strain every nerve to turn them out.

The extremes to which the argument of state rights could be pressed was amply shown twenty years ago, when it was decided by force, rather than law, that separation from the Union was not included among them. It is hardly conceivable that the question will ever again be raised or decided in the same way, yet it may be readily imagined that the march of events will tend ultimately to modify the relations that exist between the component parts of the United States. The increased facilities of communication and locomotion, the perpetual shifting of the population, and the transfer of enterprise from one state to another, the fusion of the whole race by marriage and by community of interests, all render the impediments of a dual system of government and jurisdiction more and more irksome. The differing laws as to marriage and divorce are the cause of infinite difficulty and even scandal; the state laws as to the possession, transfer and succession of property are in many cases a hardship; and the difficulty of carrying a legal claim through the complicated system of state and federal courts, is actually an impediment to the prosperity of the country, by keeping away from it outside capital and enterprise. The foreigner naturally hesitates to embark or venture in a country with whose system of jurisdiction he finds it impossible to grapple, and under which, in the event of litigation, he would inevitably find himself placed at a serious disadvantage as against the resident citizen.

WHAT WOULD BE THE EFFECT?

In its issue for Saturday last the Chicago *Tribune* gives the following advice to the farming community:

If the farmers of the West will hold back 100,000,000 bushels of this year's crop one year, not selling a bushel of it, they will get more money for the rest of their wheat than they will obtain for the whole yield if they sell it all within a twelvemonth; and the 100,000,000 held back from market, when brought out next year, will realize them twice the price they can now obtain for it. Let every Western farmer hold on to one-half or one-third of his wheat. Everyone can find storage at home for his surplus wheat for a year without much or any expense to him. He can better afford to borrow money for current expenses than throw away his wheat at present ruinous prices. Let the farmers also sow less wheat this fall and shorten up the acreage for next harvest, and thus let the consuming power of the world catch up with the supply. Just now the farmers are suffering from overproduction of wheat. The remedy is to produce less of that cereal.

Is this advice such as may be, with advantage and profit, followed? In other words, will the withholding of American wheat at this time tend to advance values? We do not believe an immediate effect would be experienced were the attempt made to comply with the suggestion of the *Tribune*, simply because harmony of action would be impossible of accomplishment. The majority of wheat growers are not in condition to hold their crop, and from those unable to do so supplies may be confidently anticipated to come forward. The advice which the *Tribune* gives its rural constituents to borrow money to enable them to carry their wheat for better prices we consider a pernicious doctrine extremely likely to result detrimentally to those who may decide to follow it. Such wheat growers as are "fore-handed," may, without loss, carry

their crop in the anticipation of better values, but until there is stronger assurance that values will advance he who borrows money in the anticipation of such advance assumes a risk that thoughtful, shrewd business men, would hesitate commending.

The assumption that present values are the result of a combination of speculators, is, we believe, gratuitous. The real cause of low prices is abundance all over the world. Our crop is an exceptionally fine and large one, and such deficiencies as may exist in other countries will be preferably made good from our surplus, but not at prices above what other markets stand ready to furnish at. We shall have a larger surplus than for a great number of years past, while foreign countries will require less than for many years past. The retention by the farmers in their own hands of 100,000,000 bushels out of the estimated total product of 530,000,000 bushels will not serve to advance values sufficiently to render the borrowing of money for this purpose a remunerative venture.

The suggestion that less wheat be sown this fall and next spring, might if heeded, prove advantageous to not only the farmer, but the country at large. THE MILLING WORLD does not believe the exportation of wheat from this country is an unmixed blessing. Indeed, if we take the *Tribune's* figures of cost of production, expense of marketing, and returns realized raising wheat for export is an unmixed curse to the American farmer. We quote:

The average yield of wheat on the farms of this country is 18 bushels; this year it may be 15. All the wheat is not good enough to grade No. 2, and a good deal of it has to be sold in the neighborhood of 45c a bushel as "rejected." The average value of the consignments received here is now about 65c a bushel for good, bad and indifferent. At this rate the showing for the farmer is about as follows:

Fifteen bushels sold at 65c in Chicago.....	\$9.75
Out of this—	
The railroad takes an average of 21c a bushel.....	\$3.15
The commission men, bankers and elevator men take 3c a bushel.....	45
It costs 5c a bushel to haul it to the depot....	75
Total deduction between the farm and Chicago, 89c a bushel.....	4.85

Leaving the farmer per acre.....	\$5.40
Cost of seeding, plowing, etc., interest on land (fully) per acre.....	7.00

Balance on the wrong side per acre.....\$1.60
This is the amount which at present prices in Chicago the farmer must present to the wheat-eaters of England and the "bears" on the Board of Trade, beside boarding himself and his family out of the savings of a previous year or the proceeds of a mortgage on his farm, to keep himself alive.

According to this the farmer, whose market is Chicago, must realize 75½ c. per bushel for all his wheat good, bad and indifferent in order to come out even. We think the *Tribune's* figures are somewhat too high, but accepting them as even approximately correct, and we are forced to admit that, despite the fruitfulness of our soils, our vast array of labor-saving machinery, and unapproachable transportation facilities, the raising of wheat for export is a precarious pursuit. The value of the entire product is governed and regulated solely by the surplus available for export; that is the foreign buyer regulates the home market, and the price will be low or high as his requirements dictate.

LIGHTNING RODS.

"Not one out of a thousand lightning-rods at present upon our buildings is of any use, for the simple reason that the rods are not led into moist ground, and therefore offer great resistance to the passage of an electrical discharge." Such is the dictum of Prof. John Trowbridge, in an article published in the last number of *Science*. When it is remembered, says the *Electrical Review*, how persistently the lightning-rod fiend attacks the dwellers in small towns and in the country, more especially in the Western States, and how successful he is in persuading people to put up his system of rods and points, it is evi-

dent that, if Mr. Trowbridge's assertion is correct, a large amount of money must be expended uselessly, except in so far as it benefits electrical quacks. Just as the public is slow to learn that not every man who practices medicine possesses the requisite knowledge, so it is slow to learn that the name of electrician does not necessarily prove knowledge of electricity; and just as the public to a great extent looks upon the druggist as a kind of doctor, so does it look upon the lightning-rod agent as a kind of electrical expert.

Mr. Trowbridge assures us that one lightning-rod company placed lightning-rods shaped like a letter U upon the roofs of houses, upon the baseless theory that if the lightning struck one point of the U it would be dissipated into the air from the opposite point.

For a hearty condemnation of this arrangement an American professor of physics was recently sued for damages by the company—damages for truth telling. Another company in Massachusetts has an electrician who needs not and possesses not works on electricity. With a forked stick, a divining-rod, he hunts for "earth currents," and, should he find one, pronounces that a lightning-rod is needed by the house near it. If he finds no such current he announces the house to be safe. Whether he often arrives at the latter conclusion we are not told. How pitiable seems the ignorance of those who loose their purse-strings because a stick, held in the hands of an interested operator, points to a fancied rivulet of electricity!

The use of lightning-rods is based not only on Franklin's well-known experiment, but on that of Faraday, who showed that powerful discharges of electricity between a metallic cage, properly connected with the ground, and an electrical machine were not only without effect upon a person standing in the cage, but were unmarked by the most delicate electrical instruments within it. A metallic netting placed over a building would be an efficient protection. The nearest approach to this is to connect "all the tin sheathing, the copper gutters, the gas and water pipes with the lightning-rod, and to conduct the latter by the shortest course possible to *wet earth*." Mr. Trowbridge tells us that with a couple of galvanic cells and a wire it is easy to prove that when a lightning-rod enters *dry* earth there is considerable resistance to the passage of electricity. When all the metallic conductors of a house communicate with the lightning-conductor and the latter with wet earth the danger from thunder storms is reduced to a minimum. A single telephone or telegraph wire entering a house may be a source of danger, but the risk disappears if the wire is connected with the gas or water pipe. Above-ground wires are a protection to the buildings near them.

With regard to the use of lightning-rods our authority tells inquirers: "If your house is surrounded by tall trees, or if there are higher houses in your immediate neighborhood, trust to the trees, or kindly leave the expense of the lightning-rod to your neighbor. If your house stands alone, a prominent point in the landscape, or remote from trees . . . place two or three pointed rods three or four feet above the highest point of the house; allow the metallic rod, which should be at least one-half a square inch in section, to rest without glass insulators, upon the house," and connect, as before stated, all metal work with it.

HOT SUMMERS.

People who have been complaining about the recent hot spells may take what comfort they can from the following historical figures published by the London *Standard*:

In 627 the heat was so great in France and Germany that all springs dried up;

water became so scarce that many people died of thirst. In 879 work in the field had to be given up; agricultural laborers persisting in their work were struck down in a few minutes, so powerful was the sun. In 998 the sun's rays were so fierce that vegetation burned-up as under the action of fire. In 1000 rivers ran dry under the protracted heat, the fish were left dry in heaps and putrified in a few hours. The stench that ensued produced the plague. Men and animals venturing in the sun in the summer of 1022 fell down dying, the throat parched to a tinder and the blood rushing to the brain.

In 1132 not only did the rivers dry up, but the ground cracked on every hand and became baked to the hardness of stone. The Rhine in Alsace nearly dried up. Italy was visited with terrific heat in 1139; vegetation and plants were burned up. During the battle of Bela, in 1200, there were more victims made by the sun than by weapons; men fell down sun-struck in regular rows. The summer of 1277 was also severe; there was an absolute dearth of forage. 1303 and 1304 the Rhine, Loire and Seine ran dry. In 1615 the heat throughout Europe became excessive, Scotland suffered particularly in 1625; men and beasts died in scores. The heat in several departments during the summer 1705 was equal to that in a glass furnace. Meat could be cooked by merely exposing it to the sun. Not a soul dare venture out between noon and 4 P. M. In 1718 many shops had to close; the theatres never opened their doors for several months. Not a drop of water fell during six months.

In 1753 the thermometer rose to 118 deg. In 1779 the heat at Bologna was so great that a great number of people were stifled. There was not sufficient air for the breath, and people had to take refuge under ground. In July, 1793, the heat became intolerable. Vegetables were burned up and fruit dried upon the trees. The furniture and wood-work in dwelling-houses cracked and split up; meat became bad in an hour. The rivers ran dry in several provinces during 1811; expedients had to be devised for the grinding of corn. In 1822 a protracted heat was accompanied by storms and earthquakes.

During the drouth legions of mice overran Lorraine and Alsace, committing incalculable damage. In 1832 the heat brought about cholera in France; 30,000 persons fell victims to the visitation in Paris alone. In 1846 the thermometer marked 125 deg. in the sun. Finally, the summers of 1859, 1860, 1869, 1870, 1874, etc., although excessively hot, were not attended by any disaster.

THE HOOSIER WAY.

"It's the worst country for mixing up matters you ever heard of," he said, as they were talking about Indiana.

"How?"

"Well, I was down there a few weeks ago to see what could be got from the wreck of a busted dry goods firm. They had assigned to a man named Choate."

"I see."

"Choate busted in about two weeks after being appointed."

"Exactly."

"The Sheriff took possession, and when I went to that official I discovered that Choate, as assignee of the firm, ought to have paid twenty cents on the dollar. Aside from the Sheriff's levy, there ought to have been enough of Choate's property to pay 15 per cent. of his indebtedness. The Sheriff was removed for stealing certain goods, and a lawyer charged me \$20 for estimating, that I ought to get 12 per cent. on my claim, but advising me to leave town before I was mobbed for inciting a riot."—*Wall Street News*.

SPECIAL NOTICES

HOW DOES THIS SUIT?

"Cooch's Bridge, Del., Aug. 25, '84.
"Messrs. Kreider, Campbell & Co.,
"Philadelphia, Pa.

"Gentlemen: Your machine was sent here against an —, on condition that we should keep the best, and we tried each machine, and are frank to say that if your machine cost us \$500 and the other was offered us as a present we should take yours, as we cannot find a fault with it. The above machine has a capacity of 50 bushels per hour."

We think best not to publish name, but it will be given upon application. Address, **KREIDER, CAMPBELL & CO.** Philadelphia, Pa.

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FOR SALE!!

Nine full set of the celebrated Stevens rolls, made by the John T. Noye Mfg. Co., Buffalo, N. Y. Six of them were sent to the Commercial Mills, Detroit, Mich., in December last, but were taken from there without having been put in operation, or having been touched by fire, and our rolls substituted. They were made from the present patterns of the John T. Noye Mfg. Co., and have their late so-called Holt belt drive (or words to that effect). We will furnish smooth rolls with these machines, or any kind of corrugations, to parties who may object to the Stevens corrugations. Three set we have recently taken from the celebrated Elkhorn Mills, of H. D. Rush & Co., Leavenworth, Kan., where our rolls are being placed. All of these rolls were made at Ansonia, Conn., and are of the same make as those used by the John T. Noye Mfg. Co. We offer these rolls at half list price. Please write for particulars. Respectfully,

NORDYKE & MARMON CO.,
Indianapolis, Ind.

SITUATIONS WANTED.

Advertisements under this head, 25 cents each insertion for 15 words, and 1½ cents for each additional word. Cash with order. Three consecutive insertions will be given for the price of two.

SITUATION WANTED.

By a miller who understands the "Roller System." Good references. Address, LOCK BOX 84, Niagara Falls, N. Y. 1880

SPECIAL ADVERTISEMENTS.

Advertisements of Mills for Sale or Rent, Partners Wanted, Machines for Sale or Exchange, etc., etc., cost 1½ cents per word for one insertion, or 4 cents per word for four insertions. No order taken for less than 50 cents for one insertion, or \$1 for four insertions. Cash must accompany the order. When replies are ordered sent care of this office, 10 cents must be added to pay postage.

FLOUR MILL FOR SALE CHEAP.

On easy terms of payment; favorably located, within 50 miles of this city, good opening. Address, P. O. Box 2418, St. Paul, Minn. 1893

FOR SALE.

A good water power flour and saw mill, doing a good business. Situated in Western Ohio. Will sell at half value. Address, LOCK BOX 17, Troy, Ohio. 1922

SECOND-HAND WATER WHEELS.

Several Leffel water wheels, thoroughly repaired, and in good order. Write for sizes, condition, prices, etc., to **JAMES LEFFEL & CO.,** Springfield, Ohio. 2027

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A practical mill man for a partner, or will sell a first-class merchant mill, with cotton gin attached. Finest location in America. Address, **JOHN ESTES,** Abilene, Taylor county, Texas. 1821

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Good water power custom mill in good wheat section, doing good business. Well located for custom and merchant work, with house, barn, and shed. **J. D. REEVES,** Newark, Wayne county, N. Y. 1922

FOR SALE.

The undivided one-half or whole of a three-run Flour Custom Mill. Never-failing water power can be had on reasonable terms. Situated in a fine wheat country. Reason for selling, poor health. Address, **L. G. BISHOP & CO.,** Argentine, Genesee county, Mich. 2124

FOR SALE.

A 50-barrel water power flour mill, situated in best wheat growing section in Ohio, on P. F. W. & C. R. R. Machinery almost new. Good town and good local trade. Twenty-five acres land, two dwellings, stables, plenty fruit, etc. For further information address O. M., in care of THE MILLING WORLD. 1441

PARTNER WANTED.

Or would sell. Capital needed to develop business of first-rate fifty barrel steam roller mill, well located in western New York. Large custom and local trade. An exceptional chance for the right man. Apply, **HUME & SANFORD,** Real Estate Agents, 16 West Swan Street, Buffalo, N. Y. 2023

A BARGAIN.

One 18-inch under-runner, full iron frame, middlings mill, made by C. C. Phillips, Philadelphia. It is brand new, has never been used, and will be sold at a big bargain as I have now no use for it. Address C. 91, care THE MILLING WORLD, Buffalo, N. Y. 14

YOU CAN BUY THESE CHEAP.

Three McCully Corn Cob Crushers. The above articles are brand new, in perfect condition, just as they left the factories, and will be sold very cheap for cash. Address S. 80, care THE MILLING WORLD, Buffalo, N. Y. 14

FOR SALE CHEAP.

One 6-horse power engine and 10-horse power boiler, all complete, price, \$350; one 8-horse power engine and 10-horse power boiler, price, \$375; one 10-horse power Portable complete, price, \$350; one 10-horse power Russell Traction, price, \$500; one 4-horse power vertical engine, price, \$120. Call or address for particulars **ETRA F. LANDIS,** Lancaster, Pa. 262

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Building 48x150, four stories; four run burrs; one set Allis rolls; latest improved cleaning machinery; double engine, 40-horse power each; capacity 120 barrels. Located on railroad switch. Good shipping facilities. Built in 1879, and in first-class order, doing a good custom and local trade. Will sell at a bargain. For particulars address, **MERCHANT MILLS,** Brownstown, Fayette county, Ill. 1922

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A four-run New Process water power flouring mill, and 160 acres of very choice land; 40 acres of young timber. Situated in Colfax county, Neb. Mill in good repair. A never-failing water power. All facilities for making first class flour. A good chance to do a first-class paying business. Owners desire to go into other business. This property will be sold at half its cost. Address, **J. A. GRIMISON,** Schuyler, Colfax county, Neb. 1741

FOR SALE.

One-half interest in my steam saw and flouring mill. Saw mill is a double circular, with capacity for 10,000 feet per day. Plenty of timber and good demand for lumber. Grist mill has two run burrs, purifier, two smutters, and power corn sheller. Plenty of bolting capacity, etc. Everything in No. 1 running order. Together with (or without) 90 acres of land, etc. A very large wheat crop this year. Only reason for selling is insufficient capital and need of help in conducting the business. Will give a bargain if sold soon. Correspondence solicited. Address, **T. M. WARNE,** Island, Neosho county, Kansas. 22

CUSTOM MILL FOR SALE OR TRADE, OR WILL RENT FOR A TERM OF YEARS.

Steam power, three sets rolls, three sets burrs, centrifugal reel, separator, smutter and purifier. Five flour reels, double conveyers, reels newly clothed; new belting throughout the mill; nine stands elevators. Mill building frame 80x40; 2½ stories above basement; in A No. 1 repair. Two railroads, mill near switch. Also dwelling of 7 rooms. Wheat plenty and of good quality, delivered at mill door. Property located at Minier, Tazewell county, Ill. Parties who mean business, and no others, requested to correspond with **B. F. BERGEN,** Minier, Tazewell county, Ill. 2223



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To all Foreign Countries embraced in the General Postal Union, \$2.25 Per Year, in advance.

Subscribers can have the mailing address of their paper changed as often as they desire. Send both old and new addresses. Those who fail to receive their papers promptly will please notify at once.

ADVERTISING.

Card of Rates sent promptly on application. Orders for new advertisements should reach this office on Tuesday morning, to insure insertion in the week's issue. Changes for current advertisements should be sent so as to reach this office Saturdays.

EDITOR'S ANNOUNCEMENT.

Correspondence is invited from millers and millwrights on any subject pertaining to any branch of milling or the grain and flour trade.

Correspondents must give their full name and address, not necessarily for publication, but as a guarantee of good faith.

This paper has no connection with any manufacturing or mill furnishing business. Its editorial opinions cannot and will not be influenced by a bestowal or refusal of patronage. It has nothing for sale, but its space to advertisers and itself to subscribers.

Entered at the Post Office, at Buffalo, N. Y., as mail matter of second-class.

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THE mill owners of Germany own almost all of the available water power of the country, namely between 80 and 90 per cent.

THAT Austrian miller must have had a very exalted opinion of the influence of the Association of Austrian millers, who moved at their recent meeting that the Executive Committee be empowered to request the Hungarian mills to limit their production because the Austrian millers found themselves unable to compete with the Hungarians.

WE are in receipt of a catalogue in the Spanish language from the John T. Noye Manufacturing Co. of this city, which illustrates and describes their "Rounds" sectional roller mill. As the commercial relations between the United States, and Mexico as well as the West India islands become more intimate, and the demand for American machinery increases, there cannot be any doubt that this catalogue will supply a demand for correct information in regard to roller milling and may be the means of an introduction of improved machinery into sections of the world where hitherto the most primitive appliances were used.

PROFESSIONAL pride is undoubtedly a very useful article if used within its proper limits, but that there is but one step from the sublime to the ridiculous is illustrated by the action of the Austrian millers at their annual meeting. A general trade's convention had the audacity to class "milling" among the *trades*, and this the gentlemen members of the dusty profession looked upon as an insult to be effaced only by a formal protest. Consequently a resolution was unanimously adopted that the millers do not recognize the authority of the trade's convention to classify milling among the

"trades." It is possible that there is something else behind this action with which we are not acquainted but we take the above fact from reports in their own trade journals.

IF anybody doubts the possibilities of electric lighting for the illumination of even the remotest corner of a large building, let him make a trip to Philadelphia and take a stroll through the Electrical Exhibition. Electric light may be a little more expensive now than gas or oil light, but we must not forget that the quantity of the latter is less, its quality poorer, its liability to produce a conflagration in mills vastly higher, and the avoidance of these three factors should be worth something.

WE have to acknowledge the receipt of a copy of "Lefell's House Plans," a work designed to fill a want with those who desire to build a house at moderate expense. This it does admirably; it would be hard indeed to represent a larger number of designs for small houses and cottages with their ground plans in a more convenient and simple manner to any prospective builder, and he must be a man more fastidious than the ordinary mortal is allowed to be, who is unable to find a design, pleasing alike to his taste and purse, in this volume. The costs of the largest majority of houses represented vary between \$1200 and \$2000, and the plans include city, suburban and country homes. THE MILLING WORLD cordially recommends the book to its readers. Information can be obtained from the publishers, James Lefell & Co., 110 Liberty street, New York.

THE grain inspector and the grain committee of the Buffalo Merchants Exchange have not been able to agree for some time and the trouble has finally resulted in the removal of Mr. Livingston, the inspector. It is not for us to decide which side is to blame. Mr. L. claims that he has performed his work faithfully and to the best of his ability, but that the grain committee has repeatedly reversed his decisions, a mode of action which necessitated the payment of the difference between the grading adopted by the inspector and that adopted by the committee out of Mr. L.'s pocket, so that his work has been performed at an actual financial loss to him. The committee, on the other hand, claims that the inspector's work has been done in such a loose manner that it could no longer be tolerated. The work of inspection is carried on temporarily by the deputy inspector until the grain committee can find an experienced grain handler who can perform his duties to the satisfaction of the Exchange.

THE mutual system of fire insurance among millers, which has been so vigorously advocated by our St. Louis contemporary in this country, and recommended by the president of the recent British convention to the attention of the millers of Great Britain, seems to find favor also in France as the only way by which millers can escape from an unfair classification and high premiums on the part of insurance companies. The advocate of the mutual system in France is the *Journal de la Meunerie*. Admitting that flouring mills can not be accepted as ordinary risks by insurance companies, it claims that modern mills are much less liable to damage by fire at present, than they have been before, especially since the introduction of electric lighting; nevertheless, the insurance premiums have remained the same, even for the best-appointed mills. In view of this, the *Journal* advocates the formation of a mutual insurance company, by which means it hopes the millers can attain their independence and have their mills insured at a reasonable rate. It would really be the

strongest argument for or against the insurance companies, to have full figures of all the damages done by fire to flouring mills for a number of years, and thus obtain a full percentage of the risks involved, and the losses sustained.

AT different periods contributors to milling journals have advocated the erection of one-story mills, and the *Miller* in its last issue gives a plan and arrangement of such a building, and concludes that "nothing could go wrong in any part of a mill of that description." Admitting this, we would like to inquire about the cost of such ideal buildings. Statistics of Hungarian mills, on the expenses as compared with the output, (published some time ago in THE MILLING WORLD) clearly demonstrate that the running expenses decrease with the height of the mill, and that a barrel of flour produced in a seven or eight story establishment can be made cheaper than one in a two or three story building. These statistics did not take into account the cost of building and ground which would again increase the cost of the product, but only the actual working expenses. There cannot be any doubt that mills could be built in such a way that the risk from fire would be reduced to the minimum, but as long as the additional expenses incurred by such improvements more than counterbalance the present insurance premiums, we cannot expect to see millers building "ideal mills," the large cost and running expenses of which will prevent any competition with their neighbors, and which would finally result in financial ruin. At such a price the possession of "one-story mills" will undoubtedly be found too expensive.

SIX weeks more, and we may hope to see some interesting local matter discussed in our daily and weekly exchanges instead of the long-winded, ever-repeating, abusive, whitewashing, and with all useless political discussions which take up nearly seven-eighths of their columns at present. Of course we have been taught to believe, and it has been currently accepted that papers will *always* furnish such reading matter as their subscribers desire to see. The truth of this cannot be denied, but it is refreshing to know that there are exceptions. For instance, we are told that the New York *Times*, although it has changed its political tenor, has not had any decrease in its circulation on that account. There is unquestionably an increasing number of intelligent readers who are able to draw the line between the politics and the *news* paper, in the same manner as an intelligent roller miller can with profit to himself follow a discussion on millstones, and vice versa, a stone miller can learn from an exposition of the merits of roller milling. The world is progressing, even if it does take a Presidential campaign to show the direction of the advance. After all, intelligent conception of things can be formed, if we listen to or follow the one side only, but an even development of our understanding necessitates a fair exposition of both sides and the intellectual standard of the individual will then determine the proper course of action.

WHEN we meet the cry for a "union to reduce production" on every side, there is some consolation in the knowledge that such an association, national or international, with regard to grain production, can never be formed; no matter how hard a few may try to make a "corner," cereal production is now so universal, that the effects of the corner will be primarily felt at the homes of the speculators. The times when the United States were able to dictate the price of grain to England, have passed; the newly developed wheat fields of India and Australia having made Euro-

peans more or less independent of any high-priced American supply, at least to such an extent that they are no longer forced to submit peacefully to the dictation of a few speculators. But while Europe can guard against very high prices, it seems impossible to do anything against cheap American grain. "To think that hard No. 2 American wheat can be sold at Liverpool at 81 shillings per quarter, foreshadows a very serious future to European agriculturists," says the New York Produce Exchange *Reporter*. "Our farmers, with all our present facilities, can go on raising wheat at a profit, even at lower rates. But what in the meantime is to be the fate of their brethren over the water? If this country can continue to crowd its wheat into West Europe at present prices, farmers in many parts of Europe will be compelled to stop raising cereals and go at something else."

What this "something else" is to be, can only be determined by the future. The present does not occupy a plane of civilization elevated enough to take into account the immediate damage done to many by improvements in machinery; the readjustment of the disturbed balance is always left to the future and it generally finds its proper level again if left alone. So it will be with the wheat crop. European nations, finding grain production unprofitable will turn to something else, until by the restricted production the prices of the imported cereal are again high enough to warrant a return with profit to the cultivation of wheat. Moreover the American export capacity will arrive at its limit at the present rate of increase in population. Great social changes are always accompanied by corresponding convulsions, and the change from high-priced grains to very low prices cannot be expected to form an exception. That during these convulsions thousands of innocent people may die of starvation, or be carried to the verge of desperation, are indisputable facts, which nevertheless demonstrate to us that universal law of nature "The survival of the fittest," a law which is in operation in the lowest forms of animal life as well as in the life of nations. The future growth of the European nations under such changed conditions will depend upon their ability to adapt themselves to their new surroundings; to reject unprofitable pursuits and create new lines of industry and commerce for those classes which were forced into idleness by the new order of things.

But this is mere speculation "in futures." At present we will rejoice in the abundant crop and pacify our minds with the fact that no country can be called poor when the harvest has been rich in quantity as well as in quality.

James R. Osgood & Co., of Boston, publish in neat and convenient form, the address of Robert P. Porter to the Arkwright Club of New England, on "Protection and Free Trade To-day." Mr. Porter graphically presents exactly what voters in both political parties want to know, the facts showing how free trade and protection works at home and abroad, in the field and the workshop. He shows how agriculture, commerce and manufacturing in the United States, Great Britain, Germany and Holland have been affected by these two economic policies. Mr. Porter's work will be appreciated by business men, farmers and artisans who have no time to read a volume on the subject, but who want a clear exposition of the condition of labor here and in European countries. He takes decided Protective ground but makes a use of the official figures, which are, at times, handled with dramatic effect. Few are better equipped, by training, to discuss this question than Mr. Porter. For several years a student of the industrial progress of the West, and author of one of the most useful works on that section; for three years in charge of an important division of the census, next a member of the tariff commission; and then sent abroad for eighteen months, by the New York *Tribune*, to investigate the condition of labor in Great Britain and the Continent. The words of the author of the address on the Tariff will carry weight with those anxious for a favorable view of the Tariff question. Price 10 cents.

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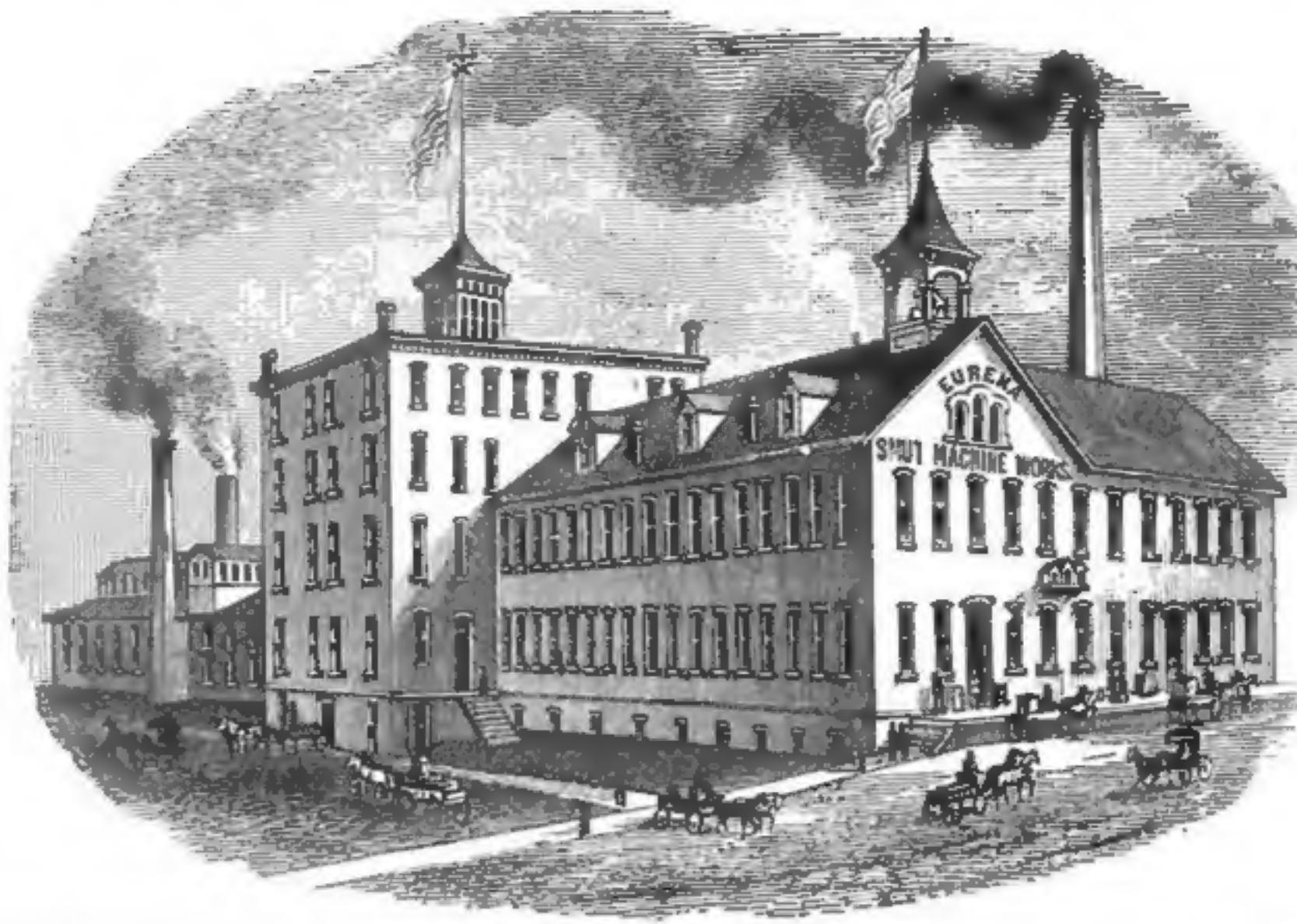
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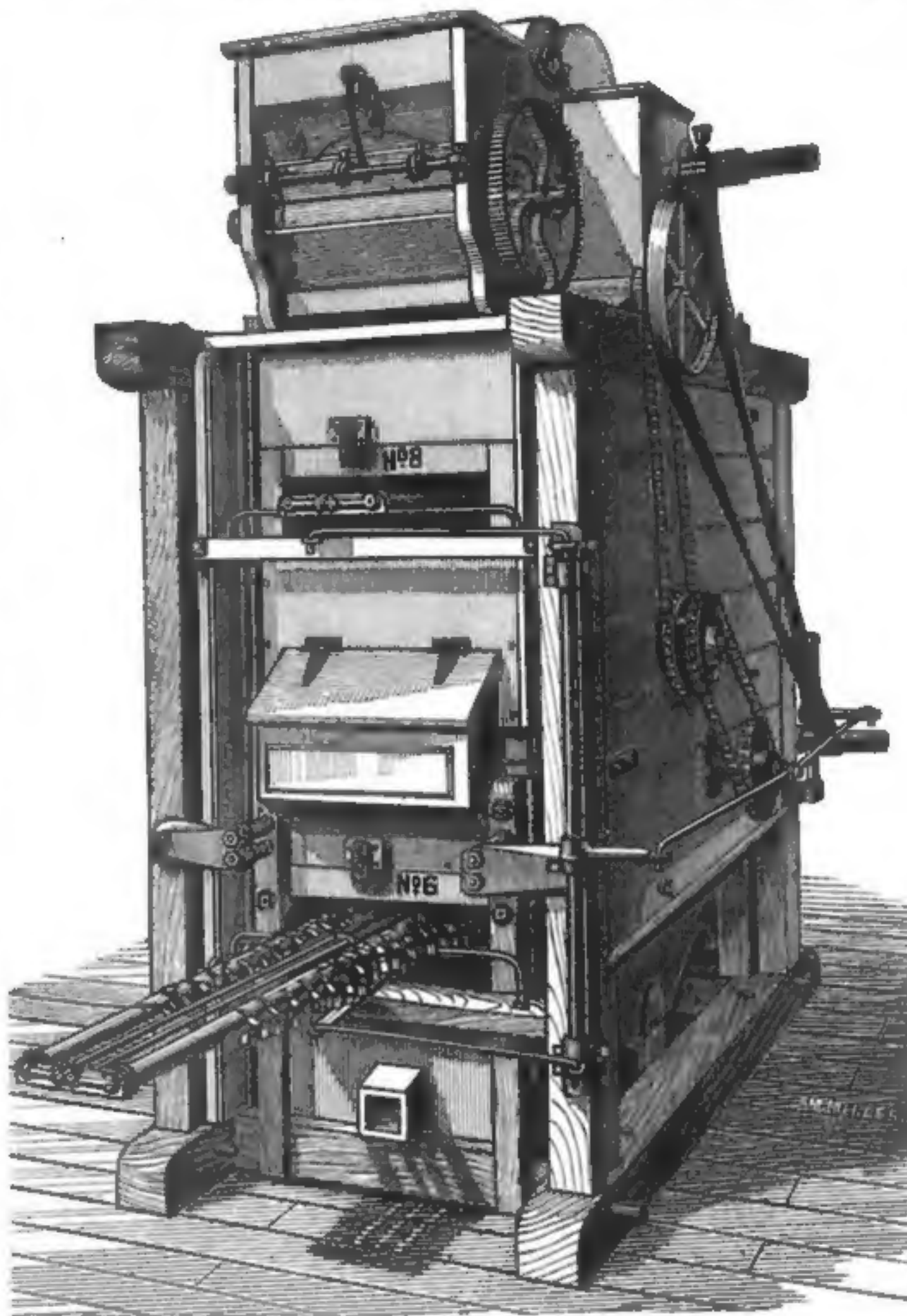
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Made of the very best double-refined English cast steel. All work guaranteed. For terms and warranty, address GEO. W. HEARTLEY, No. 297 St. Clair Street, Toledo, O. Send for Circular.

N. B.—All Mill Picks ground and ready for use (both old and new) before leaving the shop. No time and money lost grinding rough and newly dressed Picks. All come to hand ready for use.

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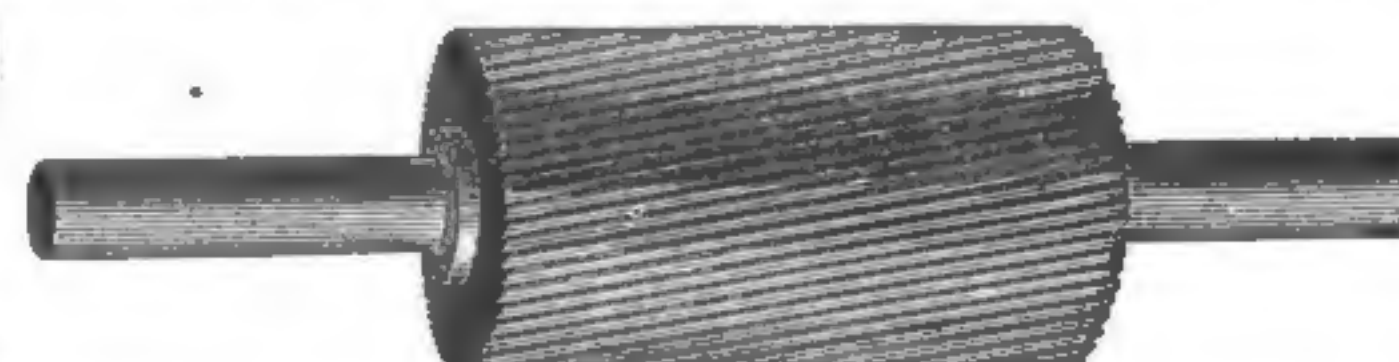
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PATENTED SEPT. 28, 1880, AND JULY 26, 1881.

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The Lord Baltimore Hominy Mill is no experiment, but is in constant use and giving unexampled results in several large mills. Its capacity is greater than that of any other hominy machine, being from three to five barrels of Hominy per hour, and in preparing the corn for Grits, Pearl Mill or Corn Flour, five to six barrels per hour. It is built of the best materials. The various cages are composed of an aggregation of staves, so that in case any of the staves are broken, they may be easily repaired with little trouble or cost.

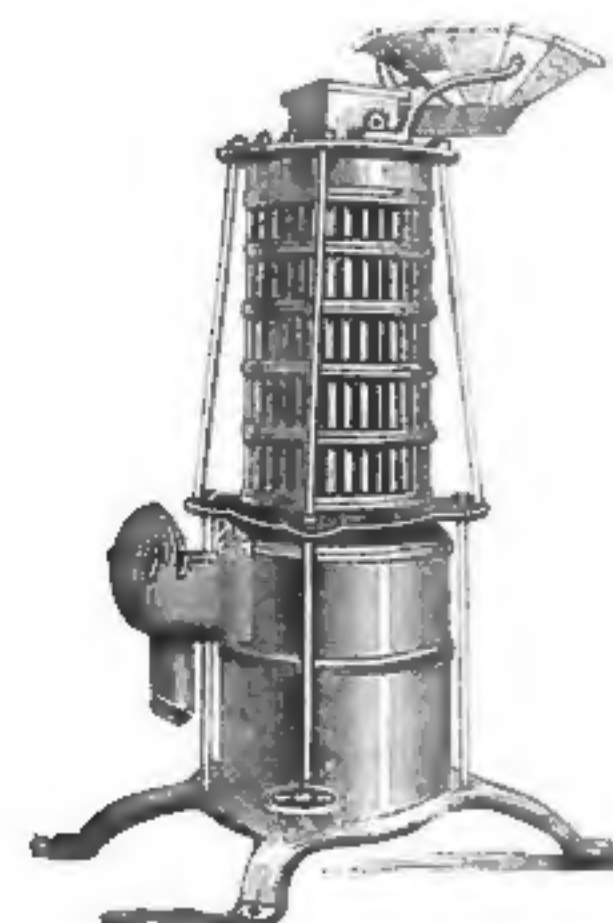
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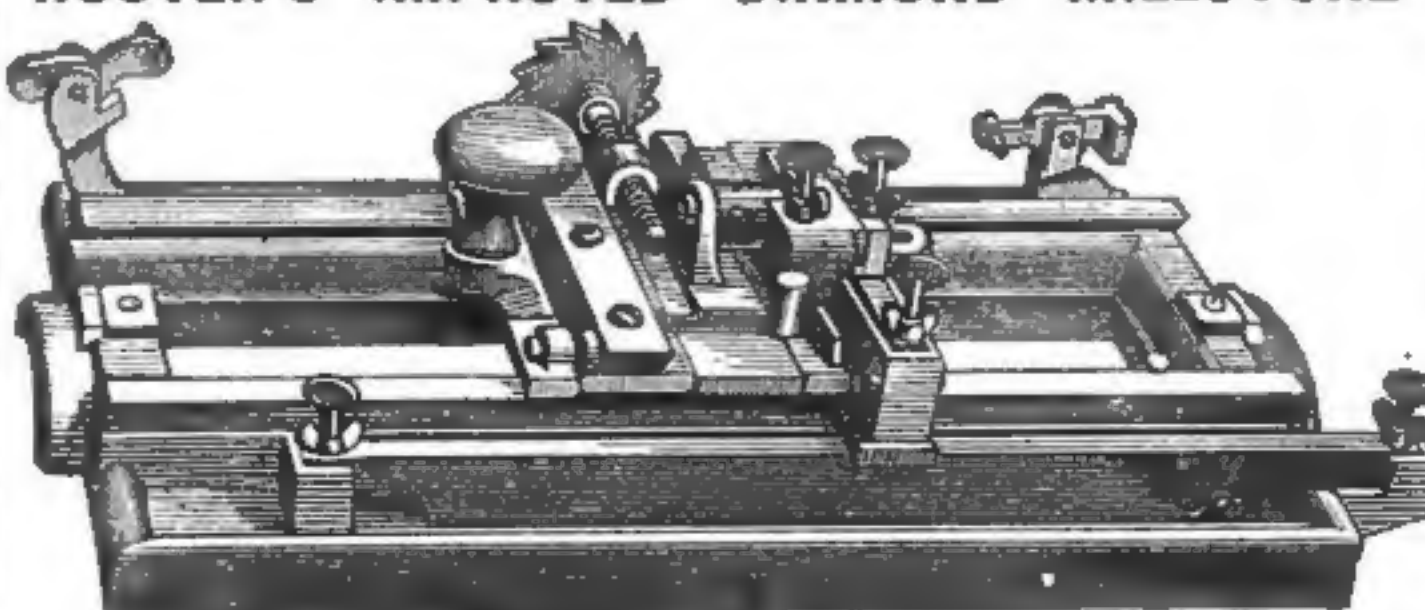
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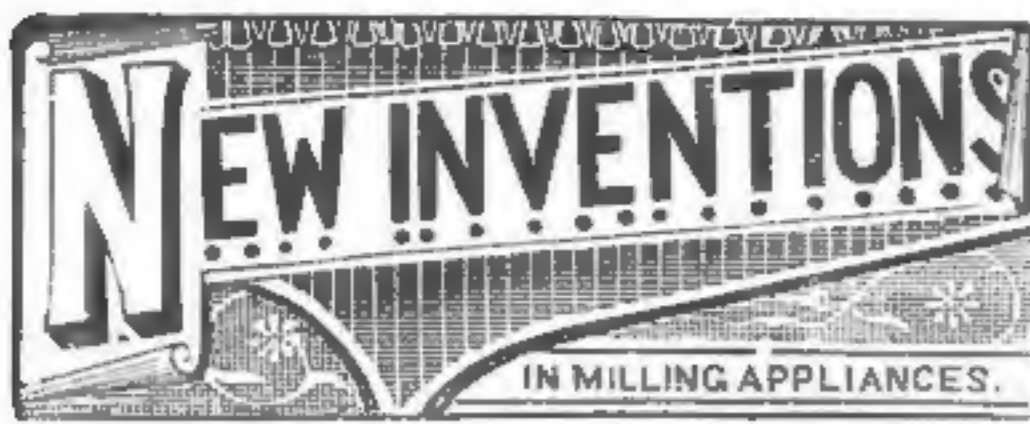


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Will do as good work, and is more easily adjusted than any other machine. Sent on 30 days' trial. Address for circulars, containing full information.

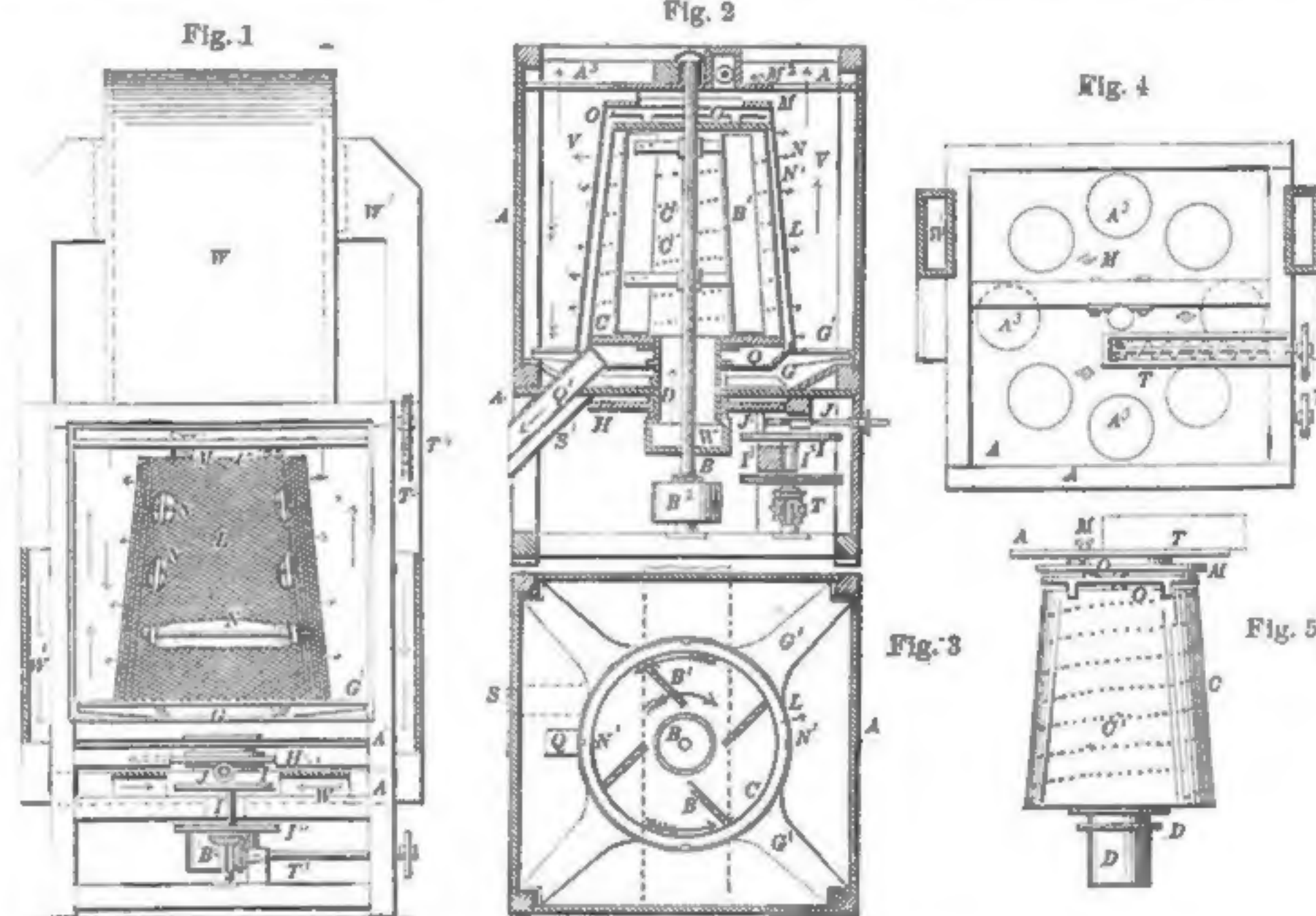
C. S. HOOVER, Patentee and Manufacturer, 409 East King St., LANCASTER, PENN.,



APPARATUS FOR BOLTING FLOUR.

Letters Patent No. 304,967, dated September 9, 1884, to Henry Stanley and Nicholas Cornelius, of St. Louis, Mo. This invention relates to an apparatus for separating flour from the bran and other foreign substances. Referring to the drawings shown, Figure 1 is a side elevation, part in section, the side of the casing being removed. Fig. 2 is a vertical section taken on line 2 2, Fig. 4. Fig. 3 is a transverse or horizontal section taken on line 3 3, Fig. 2; and Fig. 4 is a similar view taken on line 4 4, Fig. 1. Fig. 5 is an elevation of the cylinder. A represents a suitable case or housing, within which is supported in suitable boxes a vertical shaft, B, carrying a fan, B', and driven by power being applied to a pulley, B², thereon, or by other suitable means. Surrounding the fan, so as to be contiguous thereto, is a cylinder, C, which preferably tapers upward, and having series of orifices or perforations C', arranged, preferably, in spirals around its circumference, as shown in Figs. 2 and 5. As heretofore constructed the cylinder has been formed with longitudinal long slots, but fine perforations are more desirable, as even fine currents of air with a lifting tendency are directed therethrough by the fan within, instead of coarse wide currents of air. The fan being located within the cylinder, the blast of air can be more readily controlled and regulated in connection with the cylinder. The cylinder is supported by a sleeve or hollow shaft, D, to the upper end of which it is secured, the sleeve having a flange, D', resting upon a frame or base, G, held from turning with the cylinder by arms G', engaging the corner-pieces of the housing, as shown in Fig. 3. Secured to the sleeve beneath a partition, A', of the housing is a disk A, between which and a disk I, at one side of the apparatus is a friction-roller, J', on one end of a horizontal shaft, J, supported in a box, J², secured to a cross-piece, J³. The disk I is secured to the upper end of a shaft, I', journaled in a box, I², secured to a cross-piece, I³. The shaft I' carries a pulley, I⁴, connected by means of a suitable belt or chain with a pulley, B², on the shaft B. Thus when the apparatus is in operation, the cylinder is turned in the direction shown by the double-headed arrows, Fig. 3, and its speed may be regulated by moving the friction-roller J' in or out by means of a set-screw, J⁴, on the outer end of the shaft J, that jams against the housing, through which the shaft extends, as shown in Fig. 2. The fan is turned in the opposite direction to the cylinder, as shown by the single-headed arrow, Fig. 3. Outside of and surrounding the cylinder is the bolting-cloth L, secured at top to a ring, M, and at bottom to the frame or base G. It is held away from the cylinder by rings N, supported by straps N', which are also secured at top and bottom to the ring M and base G. The ring M is supported by bolts M', having heads on their lower ends beneath the ring and set screws M² on their upper ends above the top A² of the housing. Surrounding the bolts, between the ring and top of the housing, are spiral springs M³, which allow the ring to be raised slightly by cams O on a ring, O', secured to the cylinder, and which come into contact with cams O², secured to the under side of the ring M. The object of this is to jar the bolting cloth by stretching it out at intervals, and by thus shaking to keep it clean. Secured to the sleeve D, between the bottom C² of the cylinder and the frame or base G,

is a scraper or scrapers, Q, that convey the bran, &c., that fall into this chamber to a discharge spout or chute, Q', and secured to the sleeve between the frame or base G and the partition A', is another scraper or scrapers, S, that convey the flour that falls into this chamber to a discharge spout or chute, S'. The material falls from a conveyor, T, in a trough, T', onto the top C² of the cylinder, as shown by the arrows in Fig. 2. The screw may be turned by any suitable means. There is a tube or ring, U, between the top A² of the housing and the ring M, to close the communication between the inside of the bolting-cloth and the chamber V outside the cloth. Placed upon the housing A is a dust-collector, W, of any ordinary well-known construction, which communicates with the chamber V through openings A³ in the top A² of the housing, and with the sleeve or hollow shaft D, through means of air trunks or passages W'. The operation is as follows: Power being applied to the shaft B, the fan, cylinder, and conveyor are put in operation, as described. The material is thrown from the top of the cylinder by centrifugal force, and falls down between the cylinder and the bolting-cloth, as shown by the arrows in Fig. 2, where the flour is separated from the bran and coarse and foreign matter by being blown through the cloth, by currents of air created by the fan and forced through the perforations C' of the cylinder, while the refuse or



PATENT NO. 304,967. APPARATUS FOR BOLTING FLOUR.

foreign matter falls by gravity into the chamber between the bottom of the cylinder and the base, from where it is conveyed to the spout Q', as described. When the flour reaches the chamber V, the body of it likewise falls by gravity into the chamber between the base and partition, as shown by the double-headed featherless arrows, Fig. 2, from where it is conveyed to the spout S', as described. The dust or fine flour in the chamber V is drawn up into the dust-collector, as shown by the single-headed featherless arrows, Fig. 2, where the fine flour is collected, and from where the air is taken back into the fan-chamber through the passages W'. By arranging the perforations C' in spiral series a continual current of air is kept working on the material from the top to the bottom of the cylinder—that is to say, each square inch of the material has a continual blast of air thrown against it from the time it leaves the top of the cylinder until it reaches the bottom. It is not absolutely necessary that the cylinder should turn, for the material could be dropped into the chamber between it and the cloth by some suitable means and the device would operate, though it is preferred to have it turn as described.

RECENT LEGAL DECISIONS.

[From Bradstreet's.]

SALE ON CREDIT—FALSE REPRESENTATIONS.—The case of Newell vs. Randall,

decided by the Supreme Court of Minnesota, arose upon an action brought by the plaintiff to recover certain goods which had been seized by the defendant, as sheriff, as the property of one Bauman. It appeared that Bauman applied to plaintiff's traveling agent to purchase certain goods on credit, that the agent requested Bauman to state how he stood, and that the latter answered that he had \$3,000 in his business, consisting of merchandise and book accounts and \$300 in cash. This statement being submitted to the plaintiff he upon the strength of it shipped to Bauman the goods which he had ordered. It appears also that at the time the statement was made Bauman was indebted in his business to the amount of \$2,100, a fact which he omitted to state. The question was whether the property in the goods passed to Bauman or whether the sale was voidable at the election of the plaintiff. The latter view was taken by the court, which in affirming judgment against the defendant said: It is doubtless the general rule that a purchaser, when buying on credit, is not bound to disclose the facts of his financial condition. If he makes no actual misrepresentations, if he is not asked any questions and does not give any untrue, evasive or partial answers, his mere silence as to his general bad pecuniary condition or his indebtedness will not constitute a fraudulent concealment. But this was not a case of mere passive non-disclosure. The

object of the agent's inquiry clearly was to ascertain Bauman's financial condition and ability to pay. Bauman's statement was in response to that inquiry, and when he undertook to answer he was bound to tell the whole truth, and was not at liberty to give an evasive or misleading answer, which, although literally true, was partial, containing only half the truth, and calculated to convey a false impression. . . . Concealment of this kind under the circumstances amounts to a false representation.

REMOVAL OF CAUSES—TAXATION.

The question whether the Constitution and laws of the United States authorize the removal from a state to a federal court of an action brought by the state to recover taxes levied under its laws was raised in the case of *The People of the State of California vs. The Southern Pacific Railroad Company*, decided by the Supreme Court of California on the 28th ult. The court below refused to approve a petition and bond filed to have the case removed to the Circuit Court of the United States for the Ninth Circuit. The answer of the company, which was made a part of the petition, set forth many defenses under the state law, and also defenses under the fourteenth amendment to the federal Constitution. The Supreme Court of California, in affirming the action of the court below, said: "The removal of the cause if authorized by the Constitution and laws

of the United States involves the trial of every question which may arise in it, whether involving questions of state or federal law. We nowhere find a provision in the acts of Congress that should the federal court decide that the federal questions are not maintainable, the case is to be remanded to the state court, that the questions of state law may there be decided, but the federal tribunals retain the case and proceed to pass on every question, whether arising on the enactments of the state legislature or the federal Constitution and acts of Congress. We do not feel authorized to hold that the court below in not approving the bond offered by defendant and in going on with the case erred, in a suit like this by the state in one of its courts to recover taxes levied and assessed under its laws, until it has been held by the highest judicial tribunal of the United States that the removal of such a suit is authorized under the Constitution and laws of the United States."

SALE—SECRET LIENS.—The case of *Herring et al. vs. Cannon*, decided recently by the Supreme Court of South Carolina, was an action brought for the recovery of possession and for damages for the detention of an iron safe claimed by the plaintiffs, and alleged to be illegally detained by the defendant. The plaintiffs, it appeared, had sold the safe to one Griffin, to be paid for subsequently in two installments, and delivered the safe to the purchaser, with his name conspicuously painted on it. Notes were given for the purchase money, with a condition embodied in these words: "This note having been given to said Herring & Co. in part payment for a safe, and in accordance with the terms of an agreement for the purchase thereof, said Herring & Co. do not part with any title thereto until the purchase money has been fully paid." These papers it appeared were not recorded. Some time after the purchase, while in the possession of Griffin, it was seized and sold under an order of court in attachment proceedings instituted by a creditor, who obtained a judgment against said Griffin. The defendant against whom this action was brought held the safe by virtue of that sale. The Supreme Court held that it was the intention of the legislature of the state in its legislation regarding the recording of mortgages and the regulation of liens to do away with all secret liens whether written or verbal in respect to the rights of subsequent creditors and purchasers for a valuable consideration without notice. It held that the writings in question were contracts in the nature of mortgages and that, they not having been recorded, the defendant was entitled to the protection afforded by the legislation above mentioned.

INFRINGEMENT OF PATENT—DEBT.

The case of *Child vs. The Boston & Fairhaven Iron Works et al.*, decided by the Supreme Judicial Court of Massachusetts on the 10th inst., originated in a suit brought by the plaintiff against the defendants for damages for the infringement of a patent of his for an improvement in printing presses. The plaintiff it appears recovered judgment and issued an execution, which was returned unsatisfied. He then brought a bill to hold the officers of the company individually, on the ground, among others, that they had contracted debts in excess of their capital, seeking, as appears, to have the amount recovered by him as damages for infringements declared a debt of the company within the meaning of the statutes of the state. The court in dismissing plaintiff's bill held that the liability for damages for the infringement of a patent was not a "debt" within the meaning of the statutes.

INTERSTATE EXTRADITION.—The words "treason, felony or other crime," as used in the Constitution and laws of the

United States, embrace every act forbidden and made punishable by a law of a state, and when obtaining money by false pretenses is a crime by the laws of a state, the offender is subject to interstate extradition, according to the decision of the Wisconsin Supreme Court in the case of State vs. Stewart. In case the governor of the state to whom requisition is made should refuse to discharge his duty under the constitution and the laws, there is no power delegated to the general government, either through the judicial department or any other department, to use any coercive means to compel him.

CORPORATION—TRANSFER OF STOCK.—A provision in the statute under which a corporation is organized or in its by-laws requiring transfers of its stock to be made upon, and where the owner of stock has assigned and transferred for a valuable consideration the certificate issued to him, and the corporation when requested to make the transfer without a valid reason refuses to do so, this amounts to waiver of the requirements, and the transfer is complete, and the corporation is bound to recognize the title of the assignee, precisely the same as if it had done its duty and made the proper entries upon the books. Robinson vs. National Bank of New-Berne, decided by the New York Court of Appeals.

NUISANCE—ABATEMENT BY MUNICIPALITY.—While cities and towns have the right to abate nuisances, they have not the power to finally and conclusively determine without notice or a hearing, and without the right of appeal, that a given thing constitutes a nuisance, and where the authorities of a town abate a supposed nuisance under the authority of an ordinance, they are subject to the same liability therefor as an individual, unless it be established that the property destroyed constituted a nuisance. So held by the Supreme Court of Iowa in the case of Cole vs. Kegler.

SALE FOR TAXES—LIEN.—A statute of the state of Kentucky provides that the purchaser at a sale for state taxes shall acquire all the title which the person to whom the property was assessed had therein, at the date of the assessment, and "free from all claims of any person claiming under

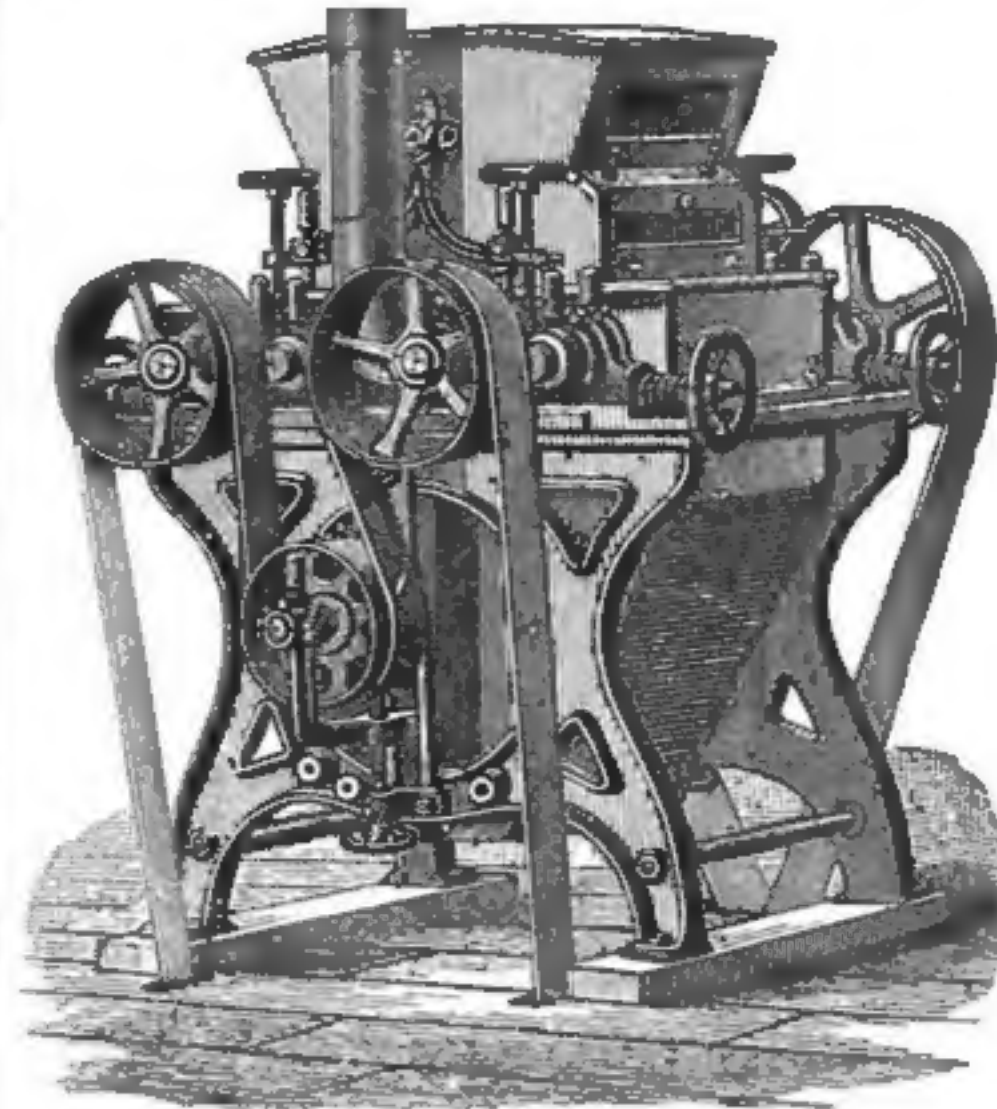
or through him." In the case of The City of Paducah vs. Green, decided on the 11th inst., the Kentucky Court of Appeals held that the act was enforceable against municipal corporations, and that the lien of a municipality, for taxes was lost when the whole estate had been sold to pay the taxes due the state.

THE first decision of the Patent Office under the new trade-mark law was rendered by Assistant Commissioner Dyrenforth in the case of Lyon, Dupuy & Co., ex parte, on appeal from the examiner of trade marks. A syllabus of the decision is as follows: 1. No applicant may register a trade mark unless he can establish, first, that he has the right to use it, and no one else has; second, that it is not identical with the registered or known trade mark of another person, and beyond this he must show that he is using the trade mark which he so owns in commerce with foreign nations or Indian tribes. 2. The statute does provide that the trade mark sought to be registered shall be used in foreign commerce; but it does not in terms provide, nor in fair intendment convey the idea that a party may acquire the right to use somebody else's trade mark merely by using it in such trade. 3. Where the records of this office disclose that certain parties registered a trade mark under the law of 1870, that such trade mark was their property, that they had been using it in this country for ten years next preceding the date of their application for registration, and there is no evidence that they ever abandoned such trade mark. Held—That section 3 of the Act of 1881 and the spirit of the whole statute authorizes the Patent Office to take notice of the facts recited in said records in determining "the presumptive lawfulness of claims to the alleged trade mark" by subsequent applicants for registration, and the examiner was justified in rejecting the application for registration on the facts disclosed in said record.

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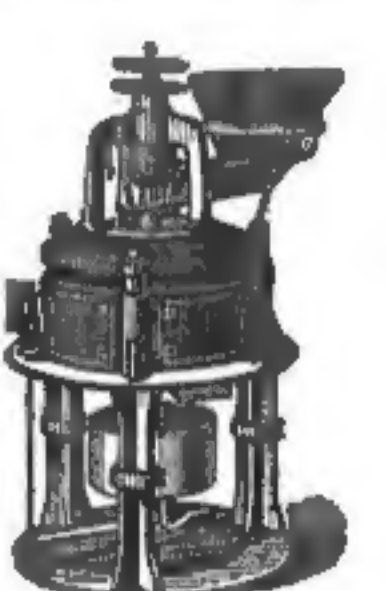
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DECLINE OF WATER POWER AND ADVANCE OF STEAM POWER.

AN interesting and highly suggestive phenomenon in the industrial progress of this country is the relative decline in the amount of water power as compared with steam power utilized for business purposes, says the *American Machinist*. This tendency is all the more suggestive by reason of the fact that no other country in the world is as well endowed with natural water power as the United States. Manufacturing enterprises usually seek water power in a new country, because of its cheapness and availability, but when all the valuable powers have been absorbed by those who are determined to get a steady revenue from them, neither of these two features of original desirability stand forth with much allurements. As water powers are improved they become more costly to the users: as steam power is improved it becomes less costly to the users.

In 1870 the census showed that there were more water wheels in use than steam engines, and that their horse power was almost as much as the total horse power of the engines. The census of 1880 showed more steam engines than water wheels, and a total power far in excess of the latter. The change is best shown in tabulated form, thus:

	Water Wheels.	Horse Power.	Engines. Horse Power.	Total. Horse Power.
1880.....	55,404	1,225,979	56,488	2,185,468
1870.....	51,018	1,190,481	40,191	1,215,711
Pr. ct. of inc.	8.60	8.40	40.54	79
				45.88

During the four years since the census was taken the progress of steam power has been greater than in any other four years of our history. What a census would now show as the relative decline of water power to be, or what the next census will show it to be, can be imagined after a study of the above figures.

The reasons for the great advance of steam power are not difficult to discover. Water power is not as reliable as it was before the forests were thinned out or cleared away, while, owing to improvements in engines and boilers, steam power is more reliable.

THE CAPACITY OF BOILERS.

Mr. Wm. Kent, M. E., in an able discussion on the evaporative power of anthracite coal, makes some instructive comments on the economic performance of steam boilers, which the inventors of patented devices for increasing the efficiency of boilers anywhere from 50 per cent. upward, will do well to keep in mind before publishing the reports of boiler trials, the results of which almost approach, equal, or even exceed the theoretical figure corresponding to the utilization without loss of the entire heat energy in the fuel. The conclusion which Mr. Kent arrives at pretty well marks the temper of the ablest steam engineers on the subject, though some might possibly be willing to allow an extra half pound or so in addition to the 12 pounds mentioned by Mr. Kent. As a rule, however, the 12 pounds will be found to hit the nail on the head. Mr. Kent's conclusion is: "That any test of the boiler at high pressure, with American anthracite coal, and natural draft, which shows a result exceeding 12 pounds water per pound of combustible should be discredited, at least until competing tests by a board of experts, such as the American Institute Fair or the Centennial tests, shall have shown that a higher result can be reached in practice."

The main argument by which this conclusion is reached by Mr. Kent is indi-

cated in the following extract from his paper: "The chief lesson to be learned from the Centennial tests, however, in this connection, is the fact that notwithstanding the great difference in construction of the boilers, the selection of the coal, and the generally favorable conditions of the tests, the highest result obtained by any of the boilers with anthracite coal is only 12.094 lbs. of water per lb. combustible. In a similar trial of five boilers at the American Institute Fair in 1871, column III, the best result is 11.34 lbs. The best result yet published of the Babcock & Wilcox boiler is 11.822 lbs., or rejecting the calorimeter tests as erroneous, 12.131 lbs. Surely these figures are sufficient to render it extremely probable that higher results than 12.131 lbs. per pound of combustible are not to be expected from such anthracite coal as was used in the Centennial tests, under similar conditions of pressure of steam and temperature of flue, and if any test shows a higher result, it is *prima facie* evidence either that the coal has a higher calorific power than the coal used in the Centennial tests, or else that the test is erroneous. The fact that the Babcock and Wilcox tests have been made with many different kinds of anthracite, and none of them have given better results than were shown in the Centennial tests is also an indication that there is no better anthracite in the market than that used at the Centennial."

ARRESTING DECAY OF WOOD.

Professor P. H. Dudley, well known to railroad and scientific men in connection with his discoveries made by the aid of the dynagraph car of his own invention, has been for some time investigating the cause of the rapid decay of wood. His methods of investigation have been mostly microscopic and chemical. Some time ago he discovered the fungi that caused the premature decay to most of the woods used in railroad structures, and followed their operations on the cellular structure of the wood. By use of the photo-micrograph, a method of photographing microscopic views, he kept a graphic record of the appearance of decaying wood tissue. After patient search Mr. Dudley has discovered the spore that acts as the seed of fungus, and he expects soon to provide a means of destroying this seed before it produces growth. Some of the wood preserving methods in use do not destroy the fungus spores, and they go on germinating their ruin making fruit. Any sure means of arresting the premature decay of wood will prove exceedingly valuable to railroad companies since bridges and ties often fail with half their natural age, and in failing often bring about disastrous consequences.

* * Prof. Mohn, of Christiania, Norway, having been employed by the government to investigate the efficiency of the protection afforded to buildings by lightning rods, seems to have substantially settled the much-debated question, at least for that region of country. His report shows that light-houses, telegraph stations, and other exposed buildings, which were provided with conductors, did not by far suffer as much as churches, which in most cases were unprotected. It appears, in fact, that of about a hundred churches reported to have been struck by lightning, only three were provided with conductors; that of these three the first had a conductor in good order, and the building was injured; the second had a conductor of zinc wire, which melted, and of course left the structure without protection; the third had a wire which was rusty where it joined the earth, and the church was burned. More than one-half the number of churches struck were totally destroyed. Mr. Preece, the English government electrician, states that

no damage has occurred since telegraph poles were earth wired.

* * The valuable suggestion has lately been made by Mr. Forbes, of Boston, that in order to prevent the vast amount of damage to property, in case of fire, by the use of water, all the floors of a warehouse be made perfectly tight, like the deck of a ship, there being also provided all around the rooms water-ways of metal with conduits to carry off water thrown in by engines, these conduits leading into a cistern in or near the cellar or sidewalk, thus saving the water to be pumped up again if wanted. If, therefore, the floor be properly laid on iron beams and made of plank thoroughly calked, and all the floor openings duly surrounded by ledges or "coamings," like the hatches of a ship, little or no water can pass through to the floors below. All brick stores should be plastered directly on the walls, dispensing with laths entirely. The expense of laying such floors will, of course, be greater than that of common floors, but the advantages of the tight floors would far more than offset the difference.

* * Severe droughts and heavy floods have been both operated to set at naught the business calculations of those dependent upon water power, while winter freezes and floating debris contribute to the annoyance and damage. The cost of dams is sometimes considerable. It is proposed to build a new one at Holyoke, to cost a million dollars, or a million and a half. The expense of land overflowed is often a large item in the cost of water power. As land becomes more valuable, the cost of water power must increase. The application of power in industrial operations increases in a greater rate than the number of hands employed as shown by census returns, and the demand for steam engines and boilers is one that must inevitably keep pace with the development of the industrial resources of the country. It is a demand that has assured elements of permanency.

* * An English company, says the *Sanitary Engineer*, with headquarters at Birmingham, is trying to get a charter from Parliament which will empower it to sell compressed air for power for small engines. It is proposed to supply the air through mains, in which the pressure will be maintained by powerful pumps at forty-four pounds per square inch.

CHAS. ROSS contributes the following interesting article to the *Marine Journal*, of Cincinnati: Previous to our war of 1812 with Great Britain, all traffic and travel on our rivers was carried on in barges, keel-boats, flatboats, olean scows, pirogues, skiffs and floating lumber rafts. The largest class of barges would average 100 tons in carrying capacity, somewhat resembling a canal boat by adding a vase board on the gunwale each side of the cargo box; transom stern with poop deck that covered the cabin, and a stand for the patron at the tiller-head; two high masts and either hermaphrodite brig or schooner sail rigging, carrying a crew when up-river bound of 100 men, propelling against the current by the use of the warps and cordelle at the rate of about fifteen miles a day, using canvas when the wind was fair in the serpentine course of these mighty rivers, making the average trips from New Orleans to the falls of the Ohio—1,400 miles in 100 days—I believe the quickest trip made was 96 days—price of freight \$5 per 100 pounds. Many of these barges were built and owned at Pittsburgh, Wheeling, Marietta, Maysville, Cincinnati and Louisville. Several sea-going vessels were built at Marietta, and floated out to the Gulf of Mexico. One of them grounded on the head of Ship Island, seventy miles below Mem-

phis, and lay there all summer. The brig *Cincinnati* was launched at the mouth of Crawfish—I think—in the year 1815. I saw her go into the river, and thirty years after I boarded her at New Orleans, and the officers told me that every particle of wood in her hull was yet as sound as a dollar. The mouth of Crawfish is about six miles above Broadway, Cincinnati.

SPEAKING about "The Uses of Great Expositions," Professor Lyndon A. Smith, of Washington, D. C., says: The exposition is like a museum, except in the necessary attendants of its short duration. The market uses have yielded to the ends of display, and advertisement expositions do not pay for themselves directly. Their value is in, first, stimulating the development of natural resources; second, the introduction of profitable industries; third, the improvement of manufactures; fourth, the increase of trade; fifth, the founding of institutions; sixth, the social development of people represented; seventh, the advancement of science, and, eighth, the promotion of education, especially that of a technical character.

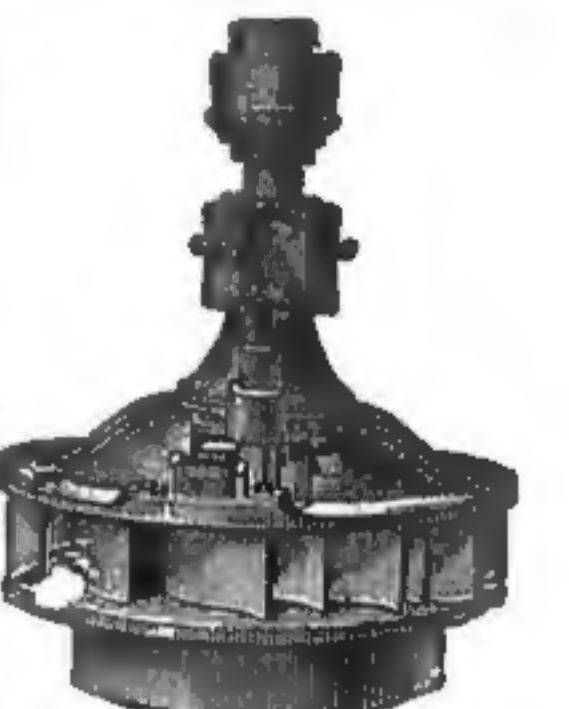
In his paper before the health congress lately held in London, which was attended with interest by many American practitioners and sanitarians, Dr. George Wilson makes some startling statements as to the domestic sanitation of the rural districts in England. He declares that one-third of the rural homes in England are unfit for human habitation, and that 700,000 hovels should be immediately demolished and replaced by habitable dwellings. In many villages half the cottages have only two sleeping rooms, and ten in every hundred only one; while the provisions for disposing of excrement are disgraceful to the boasted civilization of the country.

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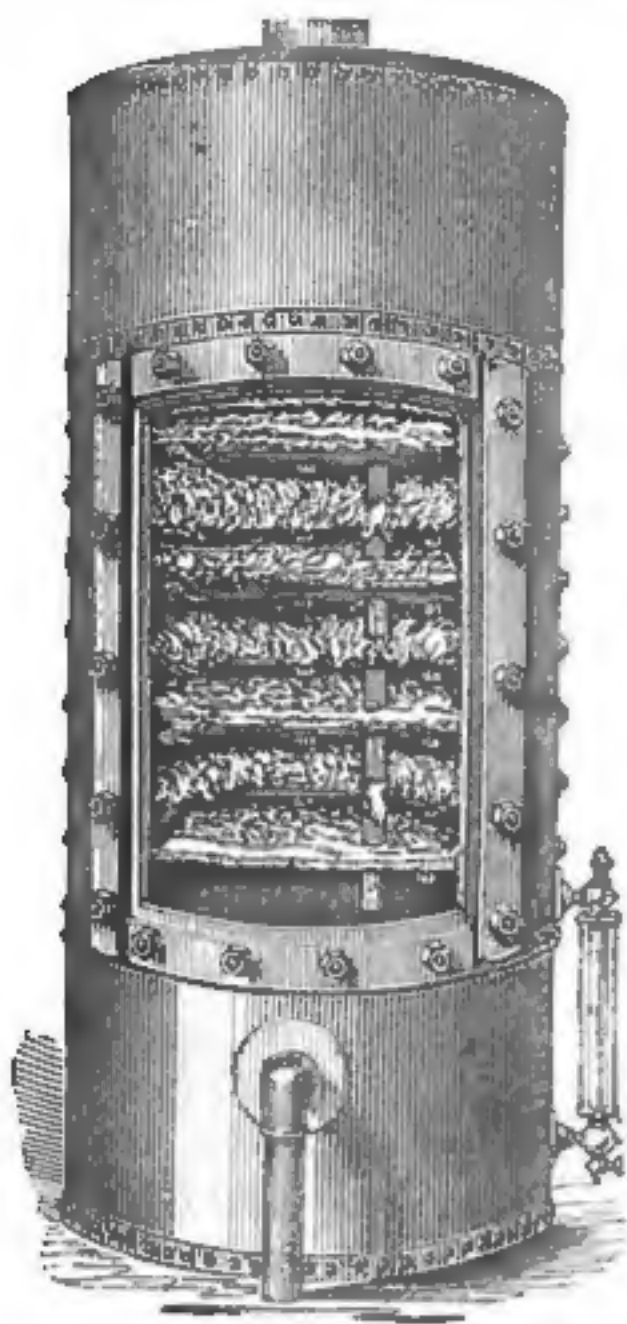
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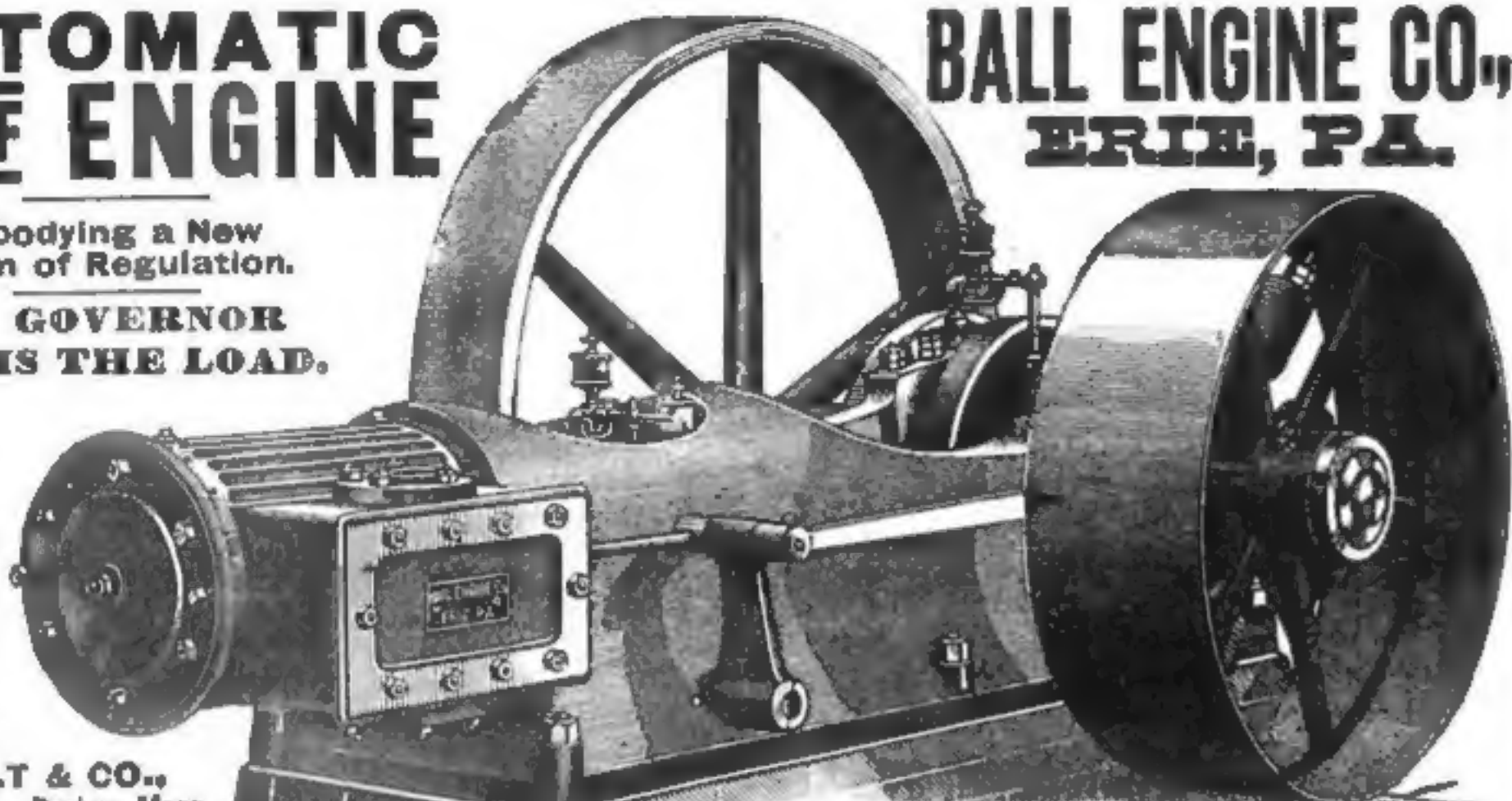
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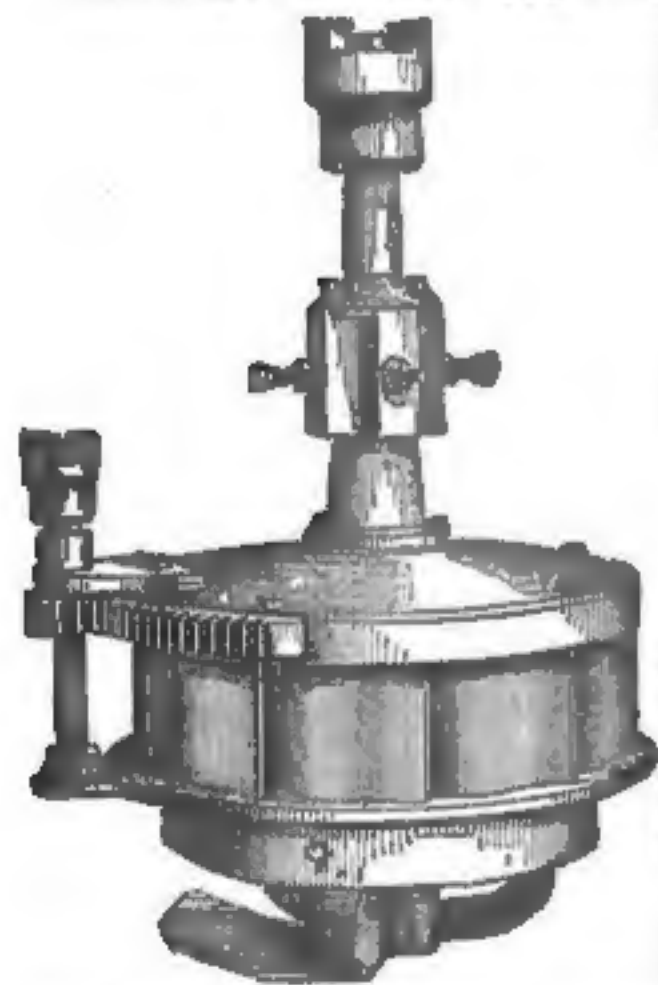
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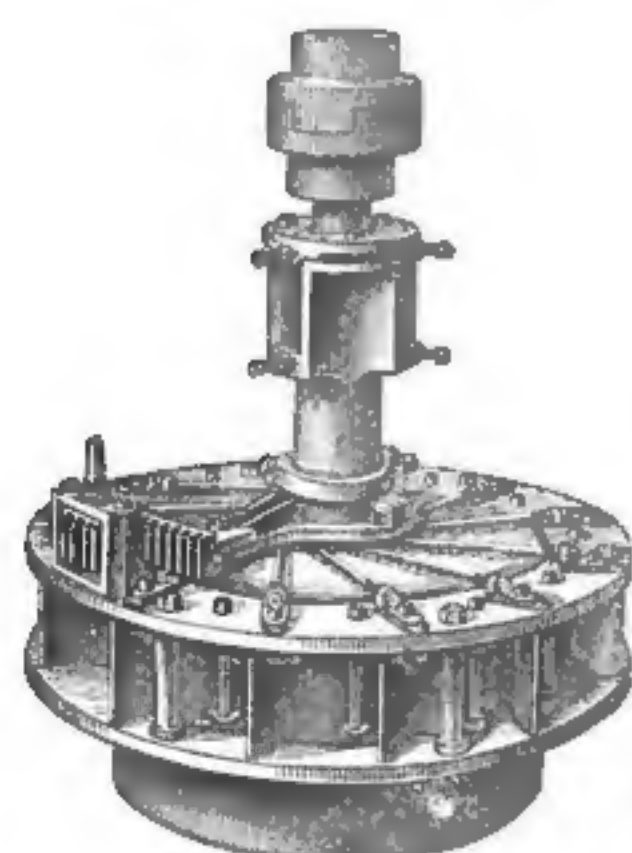
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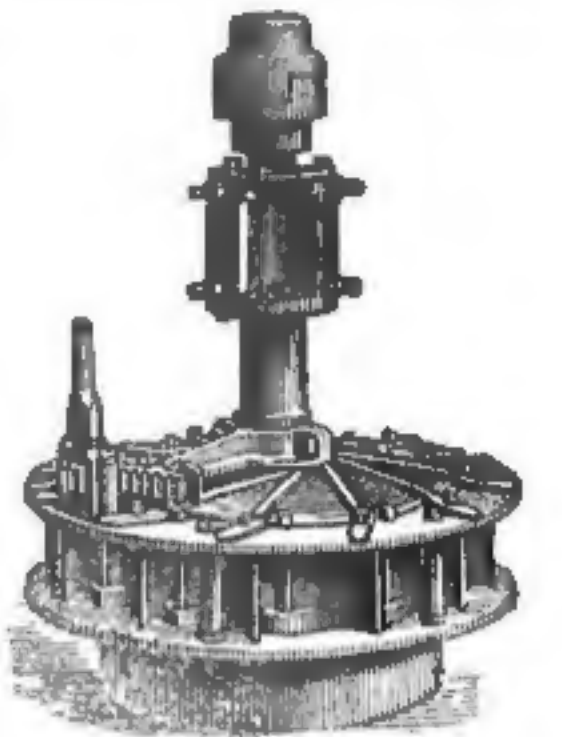
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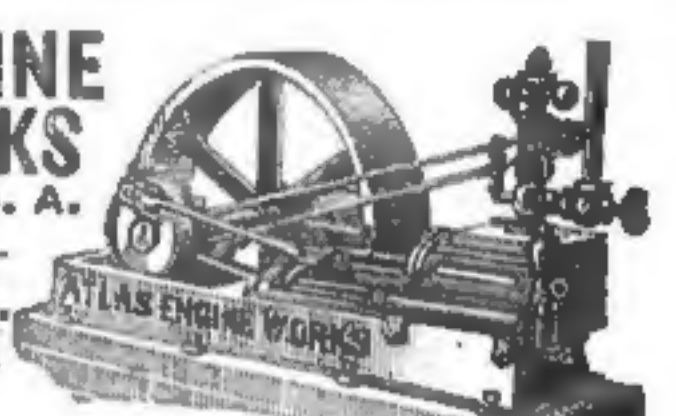
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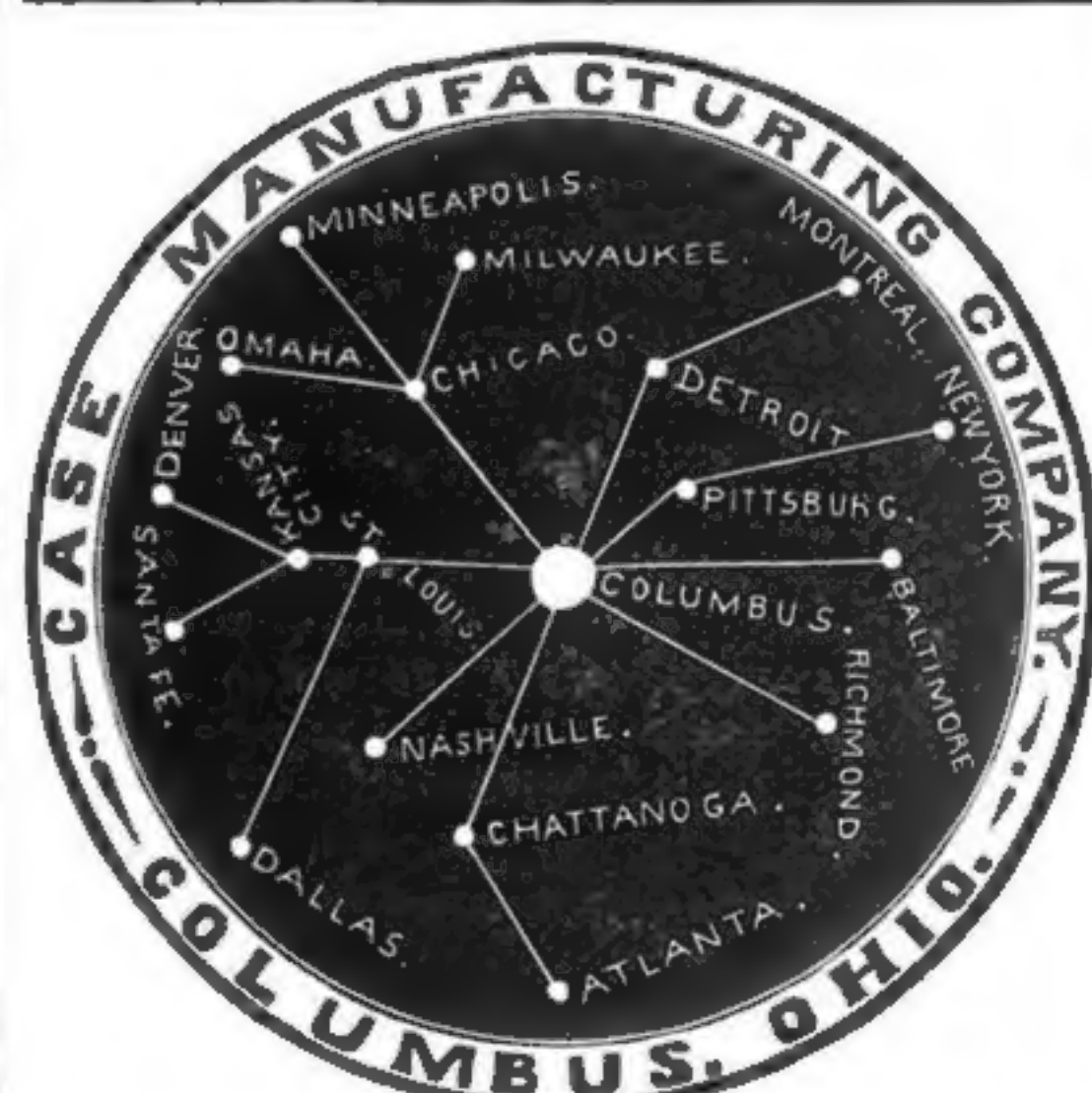
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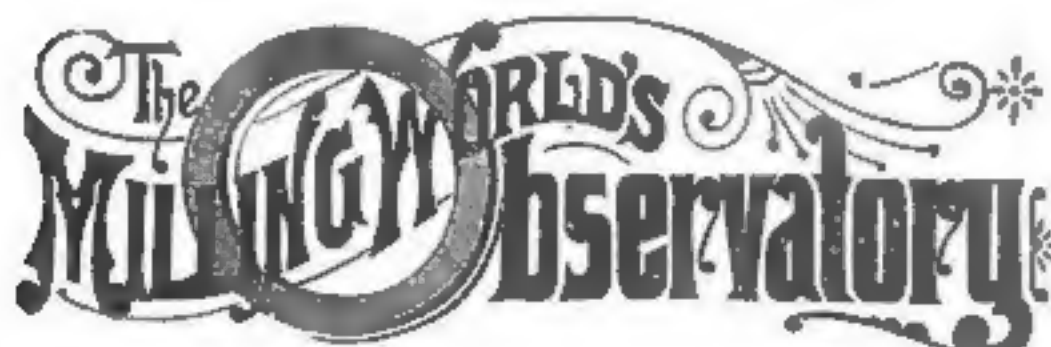
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COLUMBUS, - OHIO.



OUR MINNEAPOLIS LETTER.

[From our own correspondent.]

PREPARATIONS ABOUT COMPLETED FOR HEAVY FLOUR PRODUCTION—NEW WHEAT BEGINNING TO BE FREELY USED—FLOUR MARKETS DULL AND PRICES LOW—A NEW MILLING FIRM AT LONG LAKE—THE CITY MILLS AT ANOKA CHANGES HANDS—NOTES AND GOSSIP.

The millers of Minneapolis are just now entering operations on the new crop, and in a few days will be turning out flour in immense quantities. The work on the west side canal was completed last week Tuesday, and the greater number of the mills were then started up, although four or five were kept idle up to the middle of the present week by the work of deepening their respective tail races. All the mills on the west side of the river, twenty in number, were gainers to a greater or less degree, by the shut down of ten days. They start up with a thoroughly cleaned canal, and many of them with otherwise improved water power facilities, and, no doubt, can make up for the lost time by the aid of the advantages gained. And then, there were but few that cared very much about running, having repairs to make which seemed necessary before striking out on the new crop. The mills, fearing a repetition of last winter's low water, have done everything that would help their powers, and today are in better shape in that respect than for years. But there having been an unusually heavy rainfall during the past two months, up north as well as locally, there is not much concern about a shortage of power this winter, and steam engines are at a discount. The flour production last week amounted to about 75,000 barrels, and this week has been 100,000 barrels or over. Next week the mills will be in good trim, and no doubt will improve on their output. They have commenced to use new wheat to a considerable extent, probably half, and are about ready for big work on the new crop. The Pillsbury A is already running heavy, having on several occasions lately turned out 5,000 barrels or over in twenty-four hours. C. A. Pillsbury has said, that with the introduction of a few more sets of smooth rolls, the mill could make 6,000 barrels, and there is no reason for doubting the statement. The most of the other mills, however, are moving along at an easy pace, and not crowding things at present. As the week draws to a close, only one mill, the Excelsior, owned by D. Morrison, is idle, and that has known nothing different for a year.

The flour market is dull and lower, although flour made from old wheat is quite strong and in fair demand. Quotations are as follows: Patents, \$5.00@5.40; straight, \$4.50@4.90; first bakers', \$4.00@4.40; second bakers', \$3.20@3.70; best low grade, \$2.00@2.25, in bags; red dog, \$1.50@1.80, in bags. With wheat as low as it is, there is not much doubt that the miller is making a profit now, but by no means a large one.

The receipts of wheat are increasing, and are now practically all of new. There is a belief, however, that, while deliveries may for a time be liberal, farmers able to do so will hold their grain for higher prices, and keep the market from being overburdened, and perhaps, at times, produce a certain firmness. The stock stored in our elevators remains at about half a million bushels, but the supply of old is being materially reduced. The new wheat coming in is pronounced of good quality, averaging high in grade. Out of the total of 1,140 cars received last week, 384 graded No. 1 hard, 24 No. 2 hard, 342 No. 1 and 95 No. 2. The proportion of hard wheat now coming in, however, is much less than a year ago at this time. Comparison shows the difference to be about 25 per cent. This is due in part to the more liberal inspection which was allowed at that time in order to draw wheat to this point. This year the inspection has been much more rigid, and the result is Duluth is getting more wheat than Minneapolis. New wheat is being mixed with old in the proportion of one-quarter to one-half, and is giving good results. There are some complaints heard of smut, and that is a blemish of the crop which our millers will undoubtedly have to contend with. But the crop is large enough so that they can pick their wheat, and let the inferior part pass them. The wheat with smut seems to come off from the Hastings & Dakota division of the Milwaukee road, more than from any other section. Considerable damage is believed to have been done the wheat by late rains, but not so much but what there will be a large crop left of sound

grain, thus admitting of a wide range for selection. The Millers' Association is buying quite freely in the country, but elevator men are moving very cautiously and refusing to receive much damp wheat.

The receipts and shipments at Minneapolis for two weeks are shown in the appended table:

FLOUR.			
Week ending	Receipts. Bbls.	Shipments Bbls.	
Sept. 9,	625	36,669	
Sept. 16,	898	87,777	
Total	1,523	124,446	

WHEAT.			
Week ending	Receipts. Bus.	Shipments Bus.	
Sept. 9,	445,760	41,000	
Sept. 16,	610,960	43,680	
Total	1,056,720	90,040	

The mill-furnishing business becoming a little slow, R. G. Shuler has decided to try his luck at milling. He has purchased the half interest of the Syme estate in the Syme & DeMott mill at Long Lake, Minn., and together with Mr. DeMott will at once place the mill in shape for operation. Although fitted up with the roller system, having a capacity of 350 bbls., it has not been run any for the past two years, and of course is not in the best of condition. Mr. Shuler will manage the mill. He does not know yet whether he will go out of the mill-furnishing business or not. Mr. Shuler, with his brother, Capt. Shuler, set up shop here about four years ago, when the mills began to change to rolls, and getting the agency of the Stevens rolls, as well as doing millwrighting, made a snug little sum of money, while the business was profitable. Of late mill-furnishing has been rather poor, especially for as conservative a man about giving credits as Mr. Shuler. His brother dropped out of the firm some months since on that account, and now he himself branches out in a new erection. He pays \$10,000 for his half interest in the mill, and if its original cost goes for anything, it is cheap.

Another transaction in milling property with a somewhat local bearing has also occurred the past week. John Dunn, formerly a well-known New York state miller, has purchased the City mill, of 100 barrels capacity, at Anoka, Minn. He takes into partnership with himself, Thos. A. Baker, late head miller of the Palisade mill, and the style of the firm will be Dunn & Baker. The recent destruction of the Lincoln and Custom mills at Anoka, left the City mill a clean field for a profitable custom trade, and Messrs. Dunn & Baker were fully cognizant of this in making the purchase. They take possession of the property next week. M. Clark has been operating the mill for some time back. The Mr. Dunn of this transaction is a man who has gone through the ups and downs of life, and paid dearly for his experience. At one time he was wealthy and influential in New York state, but lost nearly his all in speculation, and has come out west with a few dollars saved from the general wreck, to begin life anew, as it were.

The Washburn Mill Co. has ordered an engine for its Palisade mill, and a building is now being erected on the lower side of the mill for receiving it. The engine is a 600-horse power Reynolds-Corliss, coming from E. P. Allis & Co.'s shops, and will be accompanied by four sixty-inch steel boilers. The plant is to be ready for use by Nov. 20, so that in case anchor ice becomes troublesome as it did last fall, the engine can be brought into requisition. This is the fourth engine already ordered this fall, making six mills in all that will have steam power in addition to water. But it is very unlikely that they will be needed this winter on account of low water. Rains have been both hard and frequent to an unusual extent, and cannot fail to have an effect on the river.

On the crop year just closed C. A. Pillsbury & Co. made the most flour of any firm in the city out-running their constant rivals, the Washburn people, by nearly 175,000 barrels. The Pillsburys made with their two mills of 6,100 barrels capacity, 1,446,838 barrels of flour, and the Washburn mills with 6,200 barrels capacity, 1,294,200 barrels. The latter, however, have run the strongest for the past five months, from March 24 to Sept. 1, turning out 736,775 barrels, an average for 23 weeks of 32,054 barrels.

In looking over the list of those mills that have, or are about to, put in engines, it is a strikingly singular fact that they belong to the three great milling firms whose names are so well known to the world in connection with the manufacture of flour, viz: the Washburns, the Pillsburys and the Christians. The mills belonging to these three great houses embrace two-thirds or over of the whole milling capacity of the city, and last year made fully that proportion of the flour.

The affairs of the Minnesota Elevator Co., and the Mazeppa Mill Co., have not yet been sufficiently

straightened out to admit of a statement of their exact condition. It is stated on the best of authority that the Mazeppa mill will be started up inside of three weeks, and the rumor is current that it will be with a new man in charge.

A movement is said to be on foot at St. Paul, for the erection of a storage warehouse in conjunction with an elevator for handling coarse grain. Private capital will engage in the enterprise. The matter will probably not be brought to a head this fall, but it is claimed that it will be pushed through by early spring.

The harvest is practically completed in Manitoba, and the result is shown to be an average yield of twenty-five bushels of wheat to the acre, against an average of twenty-three bushels last year, giving to the farmers an export of from five to seven millions of bushels.

Hayes, Grinnell & Bragg have bought out the produce business of E. Holmes & Co., of which Capt. H. W. Holmes of the Northwestern mill is a member, and Holmes & Co. will confine their attention exclusively to grain and flour.

H. C. Waite, of St. Cloud, Minn., will put in a dam and erect a 200 barrel roller mill on Sauk river, near Waite's Crossing. The cost of the mill will be about \$30,000.

C. E. French, of the Crown roller mill, has gone east in the interest of his mill.

Minneapolis, Sept. 20, 1884.

CALEB.

Notes from the Mills.

The Jewell Milling Co., Brooklyn, N. Y., have ordered four double machines, all complete, from E. P. Allis & Co.

The Case Mfg. Co., Columbus, O., have just shipped J. E. McCray & Co., Omaha, Neb., one No. 1 double purifier with patent automatic feed.

An order from W. T. Pyne, Louisville, Ky., for nine sets of rolls with patent automatic feed, has been received by the Case Mfg. Co., Columbus, O.

The Case Mfg. Co., Columbus, O., have an additional order from J. C. Ficklin, Fredericksburg, Va., for one set of rolls with patent automatic feed.

P. Duane, Jr., Oostburgh, Wis., has ordered a complete line of Gray's noiseless belt roller mills, and other special machinery, to remodel his mill to the complete roller system.

The LeGrand Quarry Company, at a large expense, have completely rebuilt their mill, and equipped it with new machinery, adapted to the flouring of native Iowa wheat.

Two sets of rolls and one No. 1 double purifier with patent automatic feed, have just been shipped to A. B. Childs & Son, London, England, by the Case Mfg. Co., Columbus, O.

The new roller flouring mill at Howard, Dak., started up Sept. 15. It is owned by I. C. Gould and L. C. Gould, the former of Morris and the latter of New Windsor, Ill., and has a capacity of 100 barrels per day.

A. B. Wilkins & Son, Patalaska, O., are making some changes in their mill, and putting in one "Little Giant" break machine and scalper combined and two pair of rolls with patent automatic feed furnished by the Case Mfg. Co.

Through the Flennekin Turbine Co., of Dubuque, Iowa, the Case Mfg. Co., Columbus, O., have an order for two pair rolls and one No. 1 double purifier with patent automatic feed to be shipped to E. Maskey & Son, Maquoketa, Iowa.

The Case Mfg. Co., Columbus, O., have an additional order from the C. A. Gambrill Mfg. Co., Baltimore Md., for six feed boxes for their purifiers. This makes over 20 Case automatic feed boxes that the C. A. Gambrill folks are using on different purifiers.

The contract of C. W. Ellis, Dubois, Ind., has been awarded to the Case Mfg. Co., Columbus, Ohio, for a full outfit of rolls, purifiers, centrifugals, scalpings, &c., for a complete roller mill on the "Case" system. Twelve pairs of rolls with patent automatic feed will be used.

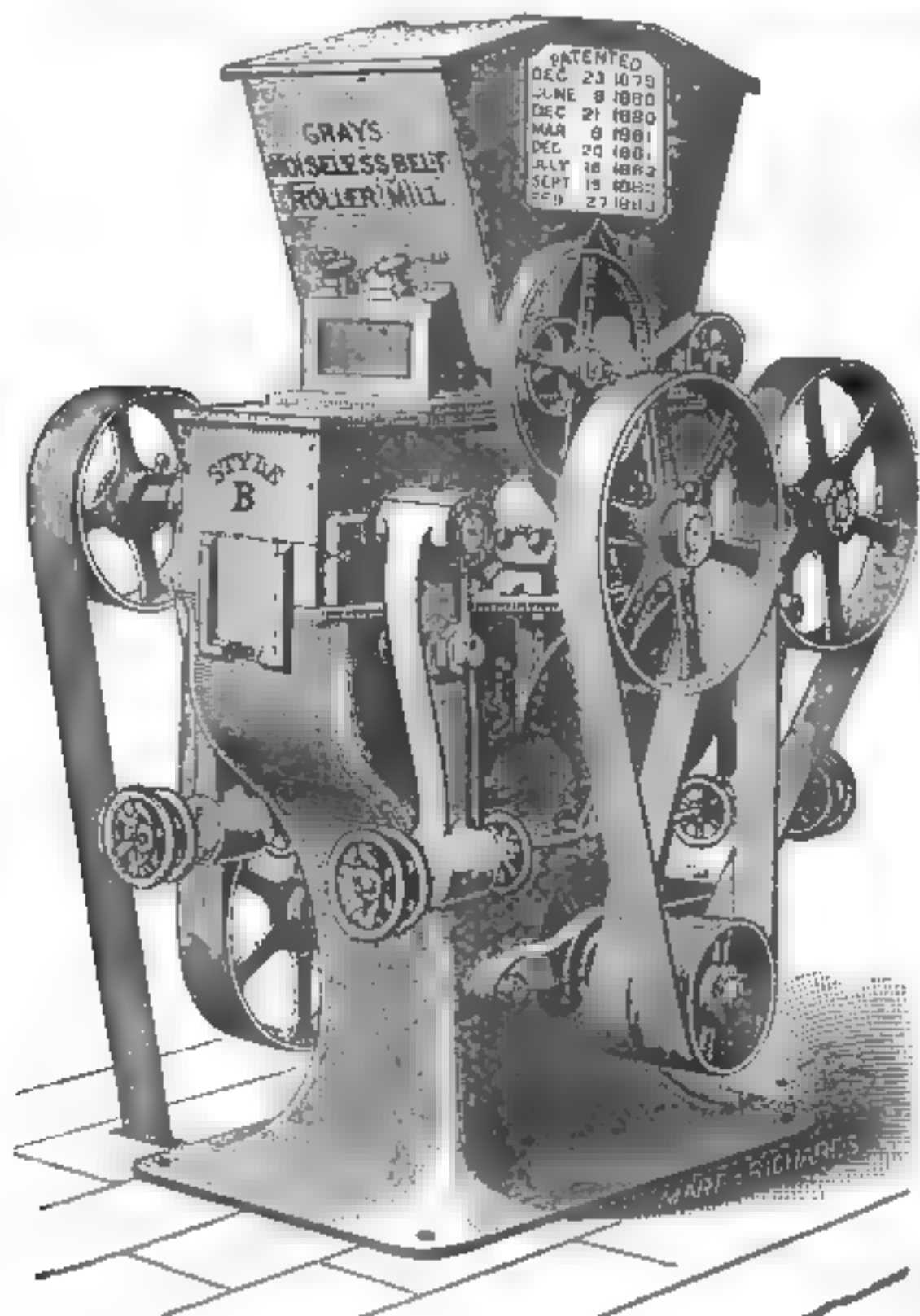
The Case Mfg. Co., Columbus, O., have secured the contract of Cox & Faulkner, Jonesboro, Ind., for a complete line of breaks, rolls, purifiers, centrifugals, scalpings, bolting chests, &c., for a full roller mill on the Case system, using twelve pairs of rolls with patent automatic feed.

The Dayton, Ohio, *Daily Journal* of Sept. 19 says: A very important decision on roller mill patents was rendered Wednesday by Justice Mathews and Judge Sage in the United States Circuit Court for the Southern District of Ohio. It is a case of the greatest importance not only to the parties to the suit but millers throughout the country. It was a case of Stilwell & Bierce Manufacturing Co. against Stout, Mills & Temple. The principal points involved in the case were the mechanical devices for simultaneously spreading apart the

rolls and shutting off the feed by means of a through shaft, and the retaining of the adjustment of the tension springs; all of which are covered by the Odell patents under which the Stilwell & Bierce Manufacturing Company have the sole right to manufacture. The case was tried before Judge Mathews of the United States Supreme Court and Judge Sage of the United States Circuit Court, and the Odell patent sustained, and the "Livingston" roller mill manufactured by Stout, Mills & Temple held to be an infringement.

A short time since the West Shore Railroad Company sent out requisitions to the different engine builders, to which they had a full response. In the face of much lower prices, they have just placed their order for a 300-horse power Cummer engine. The engine is to supply motive power for their large sh ps at Frankfort, N. Y. The Cummer Company feel quite elated at receiving this order, as it comes in the wake of an order received from the Pennsylvania Railroad Company under similar conditions, and under just as severe competition. The engine for the latter company has just been shipped, and will be used in their extensive new works at Indianapolis, Ind. The Cummer Company has also just been favored with orders for a 170-horse power engine for the Hadley Cotton Mills, Holyoke, Mass.; a 130-horse power engine, with outfit complete, for the Upton Mfg. Co., of Battle Creek, Mich., and two engines, 70-horse power each, for the Citizens Electric Light Company, Akron, Ohio. Cummer engines have just been started at the Louisville Exposition, St. Louis Exposition, and in the flouring mills of Cheesman & Driesbach, Tonganoxie, Kan. The above company report work on the three large Ballantine refrigerating machines for Joseph Hensler, of Newark, N. J., progressing very rapidly, their orders still on the increase, and a splendid outlook for future business.

The following orders have been received from millers during the past month by Ewd. P. Allis & Co., of the Reliance Works, Milwaukee, Wis. Bryan & Wheaton, Plankinton, D. T., a Gray's noiseless belt roller mill. Geo. Raithel, Lincoln, Ill., seven pairs of Allis rolls in Gray's noiseless belt frames. Plymouth Roller Mill Co., LeMars, Iowa, twenty pairs Allis rolls in Gray's noiseless belt frames. A. McMurtre & Co., Belvidere, N. J., a Gray's noiseless belt roller mill. White & Baker, Pittsford, N. Y., a No. 2 four-break reduction machine, Gray's noiseless belt roller mill, and other machinery. Jas. Cummings, Lyn, Ont., six pair Allis rolls in Gray's noiseless belt frames. A. Colburn & Son, New Cassel, Wis., six pairs Allis rolls in Gray's noiseless belt roller frames. Burroughs & Pierson, Flint, Mich., a Gray's noiseless belt roller mill. Kiddoo Bros., Neosho, Mo., eight pairs Allis rolls in Gray's noiseless belt frames, Gray's centrifugal reels, Gray's purifiers, and complete outfit for an all roller mill. Gehlen Bros., LeMars, Iowa, a Gray's noiseless belt roller mill. J. P. Shoemaker & Son, Fenwick, Mich., a porcelain roller mill in Gray's noiseless belt frame. Downs & Mefford, Topeka, Kan., a No. 2 four-break reduction machine and other machinery for their mill. Piper Gibb & Co., Pipersville, Wis., six pair Allis rolls in Gray's noiseless belt frames. J. G. Campbell, Kingston, Ont., eight pair Allis rolls in Gray's noiseless belt frames, and other machinery to fit them out in good shape on the roller system. Sidle, Fletcher, Holmes & Co., Minneapolis, Minn., another Gray's noiseless belt roller mill, with their new first-break corrugations. W. Rhodes, Fertile, Iowa, a Gray's noiseless belt roller mill. Dewey & Stewart, Owosso, Mich., a Gray's noiseless belt roller mill. K. W. Lewis, Esdaile, Wis., a No. 2 four-break reduction machine and other machinery. Stern & Wolrab, Milwaukee, Wis., a Gray's noiseless belt roller mill. Egypt Milling Co., Ashley, Ill., twelve pairs Allis rolls in Gray's noiseless belt frames, and all necessary machinery to fit them out on the roller system. Theo. Doneho, Medoc, Mo., a Gray's noiseless belt roller mill, bolting chests, etc. T. & J. W. Andrews, Thornbury, Ont., ten pairs Allis rolls in Gray's noiseless belt frames, purifiers, centrifugal reels, etc. In fact a complete outfit to put their mill on the roller system. Indianapolis Hominy Mills, Indianapolis, Ind., five pair Allis rolls in Gray's noiseless belt frames for their Hominy Mills. There are now quite a large number of the Allis rolls used for making hominy, and are giving excellent satisfaction in this line. Stein Bros., Springdale, Kan., a No. 2 four-break machine, Gray's noiseless belt roller mills, purifiers, etc., to make a good roller mill. Turner & Redfearn, Good Thunder, Minn., a Gray's noiseless belt roller mill. Elk City Milling Co., Elk City, Kan., ten pairs Allis rolls in Gray's noiseless belt frames, and complete outfit for a roller mill. Phillips & Thomas, Kennedy, N. Y., a porcelain roller mill in Gray's noiseless belt frames. Russel, Miller & Co., Bismarck, D. T., a Gray's noiseless belt roller mill. A. Pamburg, Rome, Wis., a Gray's noiseless belt roller mill.



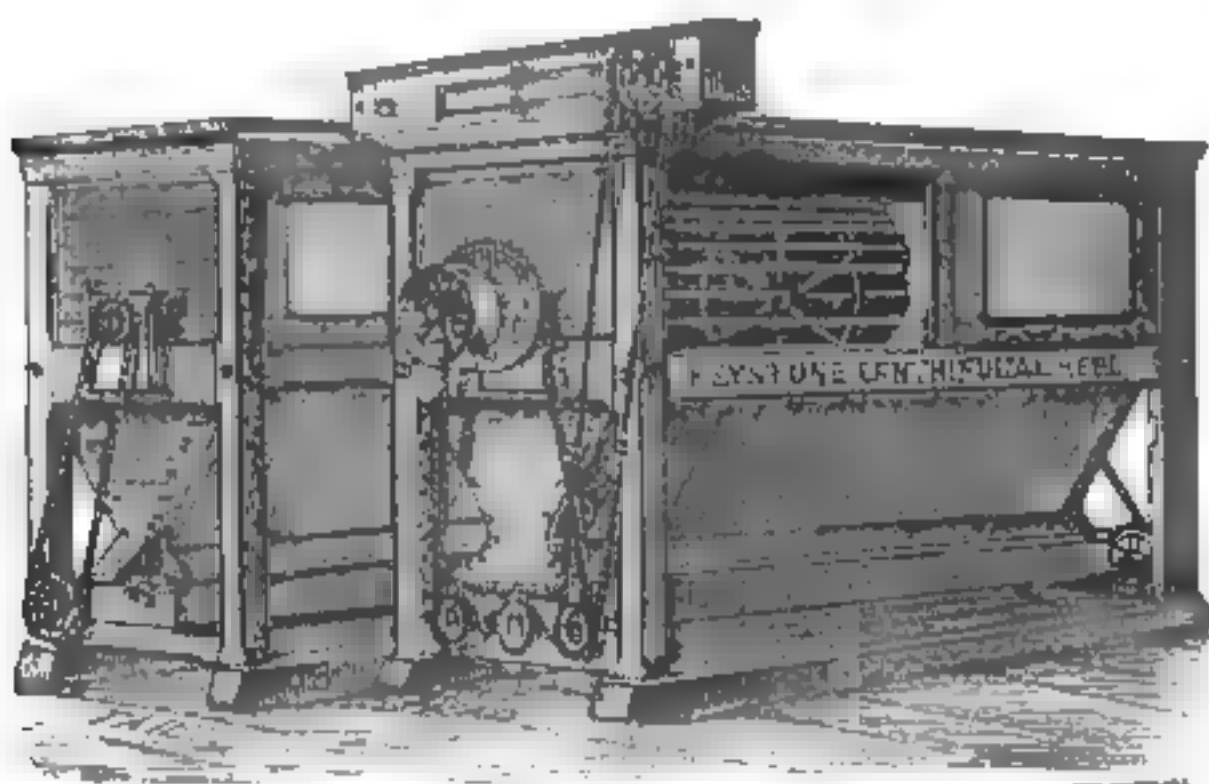
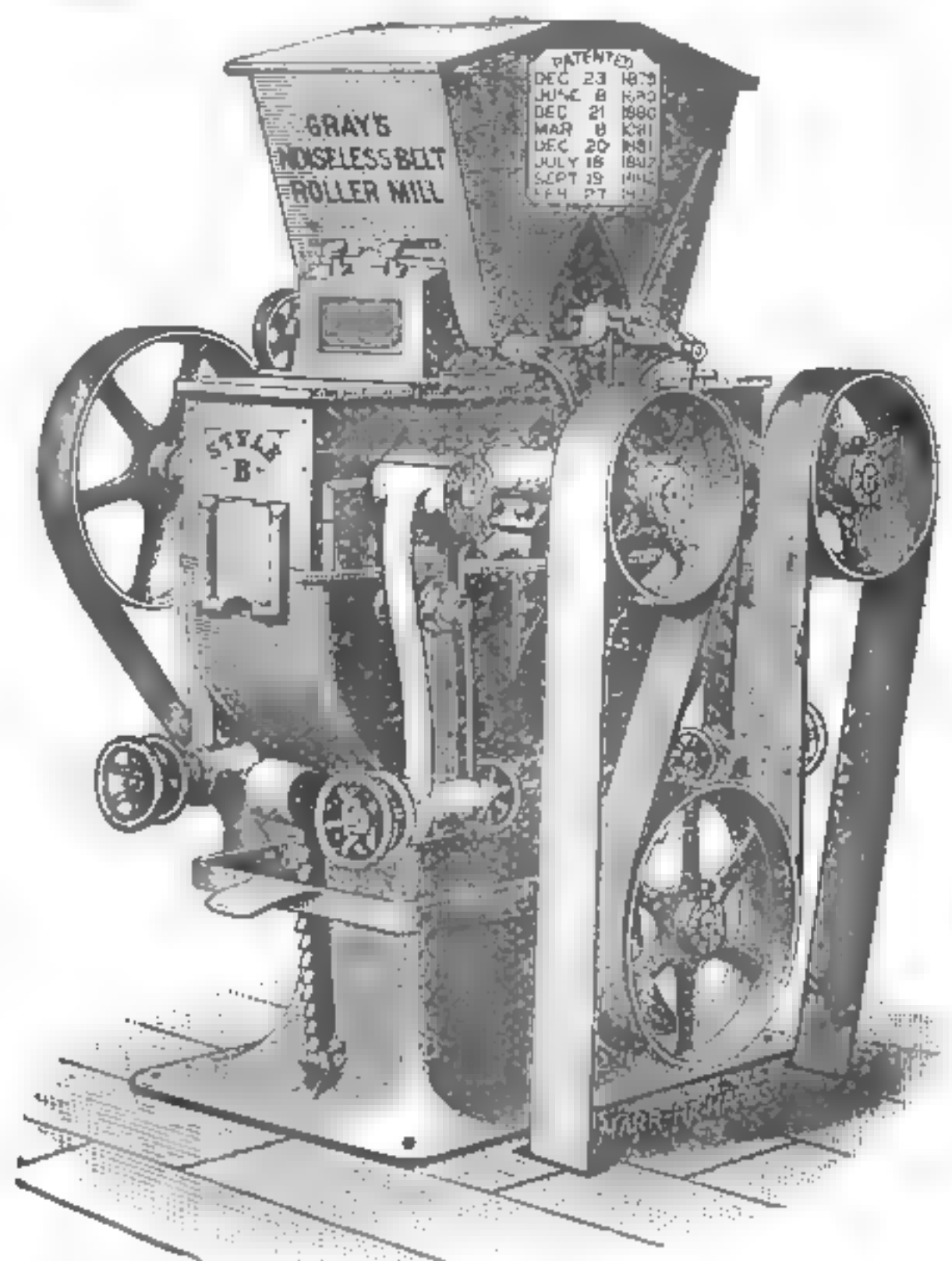
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MILL FURNISHINGS GENERALLY.
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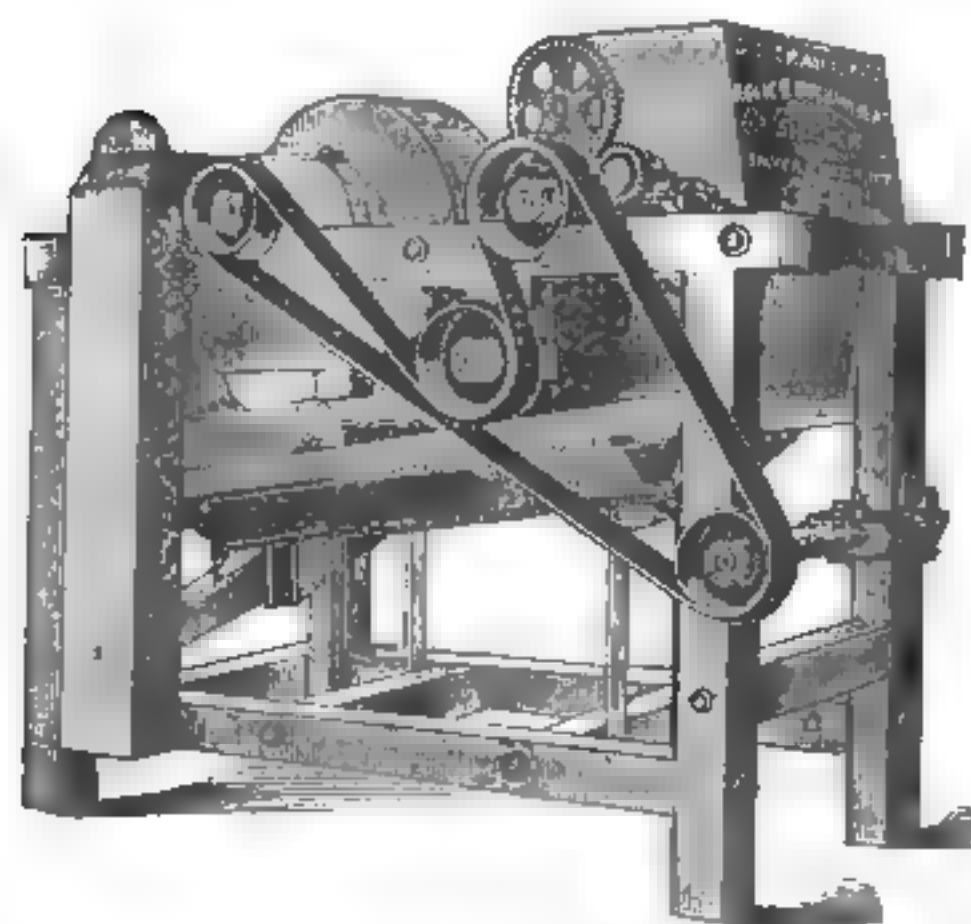
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ITS VALUE HAS BEEN DEMONSTRATED
IN MORE THAN 800 CASES. IT
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SHUCKER IN THE WORLD.



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RIGHT-HAND MILL.

CAPACITY 75 BUSH. PER HOUR.

Thousands of these Crushers
are now in use, and
giving entire satisfaction.

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THE UNITED STATES AND SPAIN.

AN interesting paper upon the "Commercial Relations of the United States with Spain and her Colonies" was read by his excellency, Don Arturo de Marcoarto, before the Economic Section of the American Association at Philadelphia. Among other things the speaker said that at this very moment the American and Spanish governments are negotiating in Madrid a treaty of commerce between this country and Cuba and Porto Rico. No doubt such a treaty will increase the wealth and enjoyment of the commodities of both countries, but North America and Spain, the most Southwestern State in Europe, have adequate products to exchange and want to supply each other.

The following statements give an idea of the imports and exports of the United States and Spain and her colonies in America (Cuba and Porto Rico), in Africa and in the Pacific:

Total imports from Spain and her colonies into the United States in 1880, \$696,807,175; in 1881, \$670,209,693. Total exports from the United States into Spain and her colonies in 1880, \$889,683,422; in 1881, \$833,547,507. Total exports and imports of Spain and her colonies are as follows:

	1880.	1881.
Imports.....	\$84,568,188	\$82,394,192
Exports.....	27,578,707	26,769,482

Total imports and exports of the United States are: 1880, \$1,586,490,508; 1881, \$1,503,757,290.

An examination of the suffering condition of the trade between America and Spain shows: 1. That letters for Spain from leading American cities go to the Northern latitude (Liverpool) and come down to Southern latitude in the Iberian Peninsula, about the same latitude as that of the principal American cities; that is to say, that letters between Spain and North America are uselessly made to take twice the time and to go double the distance that they should. 2. Cablegrams between New York and the Iberian Peninsula go to the Northward of that territory and therefore take double the distance, time and money. 3. Heavy customs tariff and irregular difficulties in the consular regulations hinder the national expansion of trade between such rich countries. No doubt our commerce will be much increased with the reduction of the tariff in both countries, and improve the telegraphic and postal communications. The speaker continued to urge the establishment of an American-Spanish line of steamers to run, say between Vigo and New York, thus making a six days' passage possible.

The speaker advocated the arrangement of the Spanish tariff so as to allow the exportation of American cereals, bread, coal, wood, cattle and meats. "I believe that America would be richer under more liberal tariffs, but, between the two evils, American protection and European militarism, I have no hesitation in declaring that the American system is less injurious."

The speaker dwelt at length upon the pernicious tendencies of European militarism, and concluded by saying that between the Spanish people (discoverers of America) and the energetic inhabitants of America there will be no war. "Let us negotiate a treaty of international arbitration to submit all the differences between Spain and America to an international tribunal. There have been made in Europe in late years nineteen treaties of commerce with one clause of international arbitration. I rejoice to see that America is so inclined to a peace policy that the international arbitration system is introduced in one of the platforms for the next presidential election."

HUNGARIAN MILLS.

The following tables illustrate the growth and capacity of the mills of Budapest better

than any lengthy description. The figures are given in metercentner (about 3¼ bushels):

	Grain used.	Flour produced.	Bran produced.
1870	3,100,000	2,392,000	504,000
1871	3,332,000	2,549,000	564,000
1872	2,822,000	2,117,000	575,000
1873	2,660,000	2,013,000	554,000
1874	2,664,000	2,002,000	586,000
1875	3,148,000	2,368,000	682,000
1876	3,158,000	2,389,000	685,000
1877	3,781,000	2,781,000	803,000
1878	4,147,000	3,120,000	888,000
1879	4,399,000	3,275,000	974,000
1880	3,673,000	2,798,000	766,000
1881	4,062,000	3,039,000	907,000
1882	4,762,000	3,560,000	1,082,000
1883	5,527,000	4,174,000	1,170,000

NOTES.

The tea-plant has been successfully acclimated at Auckland, New Zealand.

At Gran, in Hungary, a mill was lately wrecked and the miller drowned by the bursting of a waterspout.

The Hygiene Congress which recently met at The Hague, Holland, denounced the modern system of education, and declared a competitive examination injurious to the health of students.

According to the *Muehle*, several large millers in North Bohemia have lately been importing Indian wheat, and are so well pleased with the result of the experiment that fresh consignments have been ordered.

The Bischoffsmuehle Flouring Mills at Hildesheim, Hanover, Germany, were completely destroyed by fire on the evening of Wednesday, Aug. 13. The damage to buildings, plant, etc., is estimated at 300,000 marks, say £14,375.

Dr. Carlos Faremba, of Mexico, has addressed a circular letter to all representatives of foreign governments now in Washington, advocating the celebration of the discovery of America on its 400th anniversary, October 12, 1892, and the erection of a monument on the spot where the first landing was made.

The supposed germ of pneumonia—belonging to the class of microscopic organisms known as micrococci—has been discovered by Dr. Friedlander and exhibited to the medical societies of Berlin. When the germs were introduced into the bodies of mice, either by inoculation or inhalation, true croupous pneumonia was invariably produced.

In China mercury is said to be the philosopher's stone. Chinese medical works say it takes 200 years to produce cinnabar from mercury; in 300 years it becomes lead; in 200 years more it becomes silver, and then, by obtaining a transforming substance called "vapor of harmony," it becomes gold. This doctrine of the transformation of mercury into other metals is 2,000 years old in China.

When it comes to dealing with dishonest bank directors and managers France can just now give us pointers, as the sentences in the Banque de Lyons et Loire cases fully show. Five years in prison, ten years' suspension of civil and political rights, and \$4,000 fine may seem a heavy dose, but it is no heavier than should be administered in several noteworthy cases in our own land.

An International Inventions Exhibition, in 1885, will be held under the patronage of Her Majesty the Queen, in May, 1885, and will continue open for about six months, at South Kensington. The time for applications for space has been extended from September 15 to October 1, 1884, and forms for such application should be sent to the secretary of the International Inventions Exhibition, South Kensington, London, S. W.

The Bread Reform League of England, intend holding an exhibition at Humphrey's Hall, Albert Gate, Hyde Park, London, from November 15th to November 29th, 1884, for the purpose of promoting the special objects the League has in view. Among these are the provision of whole meal breakfasts for poor children at Board schools during the winter months. It is stated that if funds permit, a meat dinner will be given once a week.

A correspondent of *The Miller*, in writing from Tasmania, says: "Milling is very quiet here, being confined to local trade, little or no exports, and little or no imports of flour; so we are not brought into competition with the larger milling concerns of Sydney, Melbourne, or Adelaide, where they are doing a little in the improvement of their mills—some on the 'new process' by stones, and others by gradual reduction on rollers. Here rolls are only used on purified middlings, helping out the yield a little, but not improving the quality much."

The wheat importing countries of Europe are estimated to require 356,000,000 bushels. The

supplies from different countries, in millions, are: From Russia, 74; other European countries, 36; India, 30; and all other countries, 47; aggregating 187,000,000 bushels, and leaving 169,000,000 for the United States. Of corn, 125,000,000 bushels are required, of America supplies 69,000,000. There has been of late a marvellous surplus of grain production in the Mississippi Valley—the shipments from St. Louis to New Orleans having increased, from 1871 to 1883, from 300,000 to 12,000,000 bushels.

The excellence of the English wheat crop this year appears to have a curious effect upon the minds of certain millers. They say, according to an English exchange, that with such good home-grown wheat to handle there is no need for them to go in for changes in their mills just now, and they therefore put off the evil day sometime longer. Procrastination is at all times dangerous, and since a change in the style of milling seems inevitable it is especially dangerous on the part of millers. True it is that a good stone plant can handle fine home-grown wheat well, and with better comparative results than when an admixture of foreign sorts has to be treated; but it is equally true that a gradual reduction plant will handle it better, as is proved by experience; therefore our advice is, make whatever changes may be necessary and be prepared to meet whatever comes.

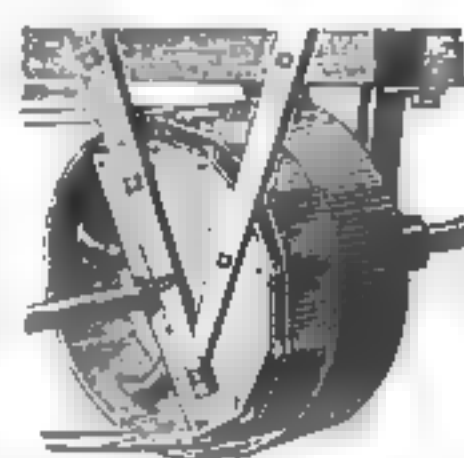
In the course of last year the Association of German Millers, acting through their president, Herr Joseph Van den Wyngaert, petitioned the Minister of Agriculture for the institution of a public analyst of wheat. The Minister acceded to this request, and appointed Professor Kreussler, of the Agricultural College of Poppelsdorf, near Bonn, in Prussia, to report on the flouring and panificatory value of any sample of wheat that might be presented to him. The millers of Germany, as a body, do not seem to have appreciated the value of this concession, as it is said very few avail themselves of the opportunity of testing the quality of the materials on which they work, and the association have recently published another appeal in the columns of the *Muehle*, begging their members not to throw away this chance of establishing an authoritative standard of the value to the miller of the different kinds of wheat.

The Agricultural Department of the British Government has issued a memorandum on the wheat harvest of the current year, from which it appears that the yield in the Northwestern Provinces of India was below the average, owing to the deficiency in the autumn and winter rains;

while in the Punjab and Bombay the average was slightly exceeded, and in the Central Provinces the harvest was excellent, being fully 15 per cent. above the average. The total yield of these four provinces is estimated at 24,500,000 quarters. Reports have not yet been received from Bengal or Rajpootana; but it is evident that the total out-turn of India will come up to what is supposed to be the annual average, namely, 30,500,000 quarters. And if this year's autumn rains do not fail, at least one-fifth of that quantity should be available for export, without materially enhancing the price. The wheat exports have been of moderate amount since January last, and it is believed that a considerable quantity is now in stock.

M. Levasseur recently read to the French Academie des Sciences an interesting report upon the progress made in primary education throughout France during the last five years. The annual ordinary expenditure has increased during that period by 37 per cent from £2,988,696 in 1877 to £4,690,402 in 1882, while the expenditure provided for by the law passed in 1880 for equipping and endowing primary schools has been between £8,000,000 and £9,000,000 during the same period. The number of primary schools has increased in five years from 71,547 to 75,635, the increase being chiefly in public and lay schools. The number of pupils in the public and free schools has risen from 4,716,935 in 1876-77 to 5,341,211 in 1881-82, and of this latter total 4,359,256 were students in the public schools. The progress in public education has been entirely confined to the lay schools, which have gained 584,968 students since 1878, while the public religious schools have lost 208,514. But in the free schools the reverse has happened, the religious ones having increased by 140,337 students, while the lay free schools have lost 44,667. The number of pupils in the infant schools has increased during the same period from 532,077 to 644,334.

The Wellington Belt Holder.



A NEW IDEA!

BETTER AND CHEAPER THAN LOOSE PULLEYS.
BETTER AND FAR CHEAPER THAN DEAD PULLEYS.

Our Customers Like It and Order More.

Please write for Circular to

W. R. SANTLEY & CO., WELLINGTON, O.

TRIMMER'S Improved Adjustable GRAIN RUBBING, POLISHING AND SEPARATING MACHINE COMBINED.

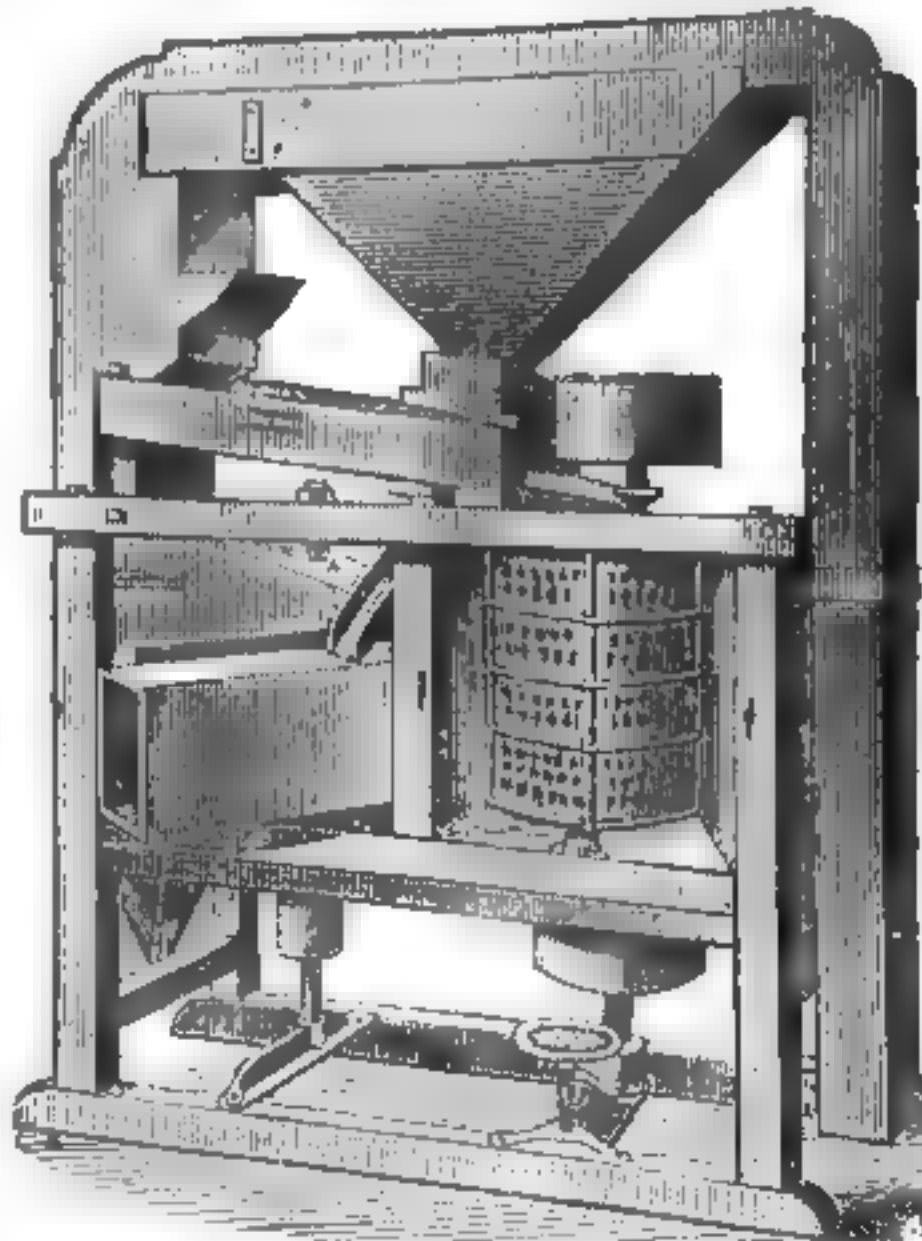
It will clean, rub and separate wheat, and take out the rat balls, black seed, joints of straw, cockle and other impurities. It will also rub off more fuzzy ends and dust from the creases of the berries, by rubbing the wheat together as it passes up between the rubbers, so each berry must get rubbed, scoured, and polished alike. It will do all of this work better and last longer than any other machine of the kind. All this we guarantee. It will also clean barley and rye.

SEND FOR DESCRIPTION & PRICE LIST.

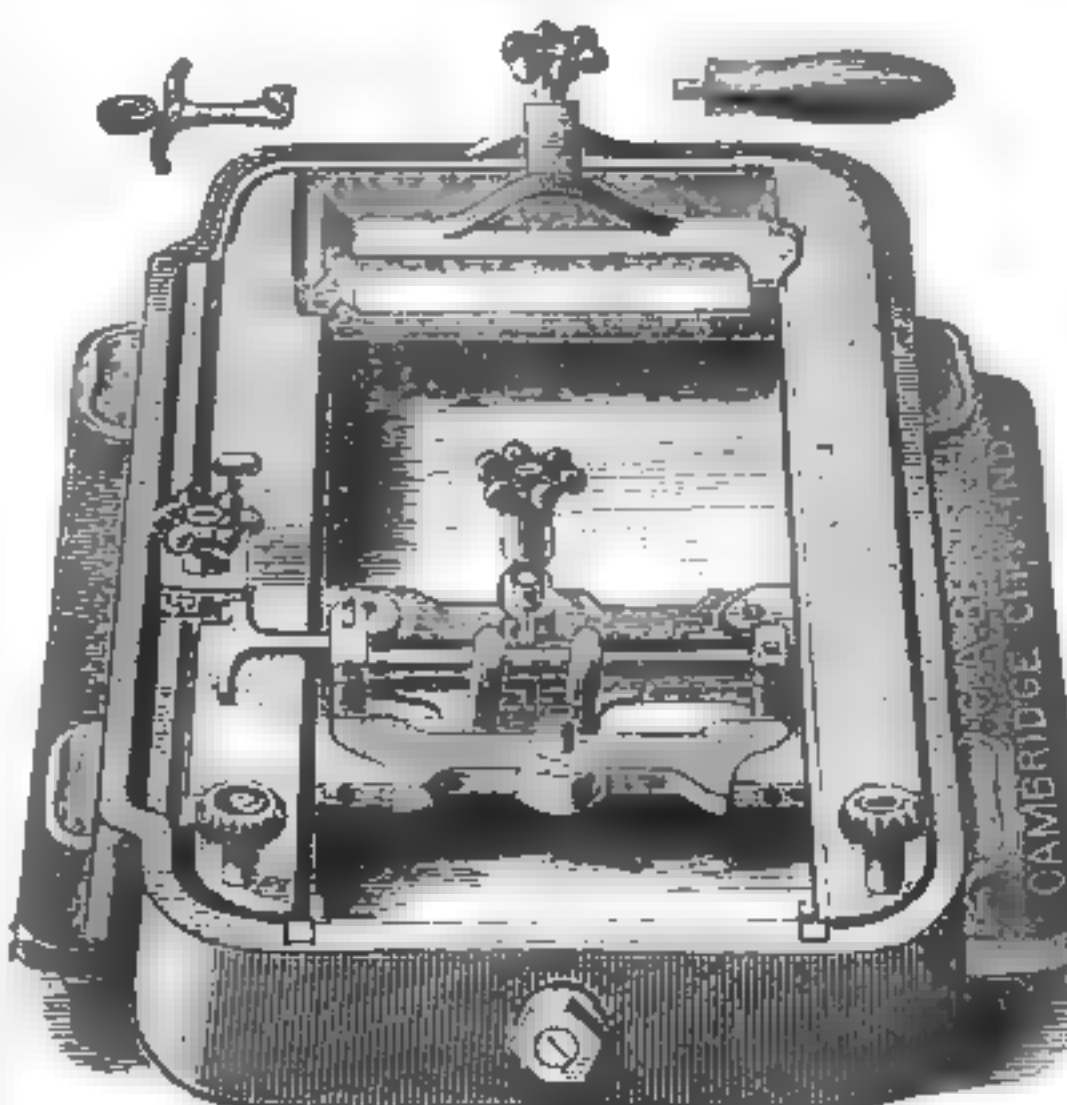
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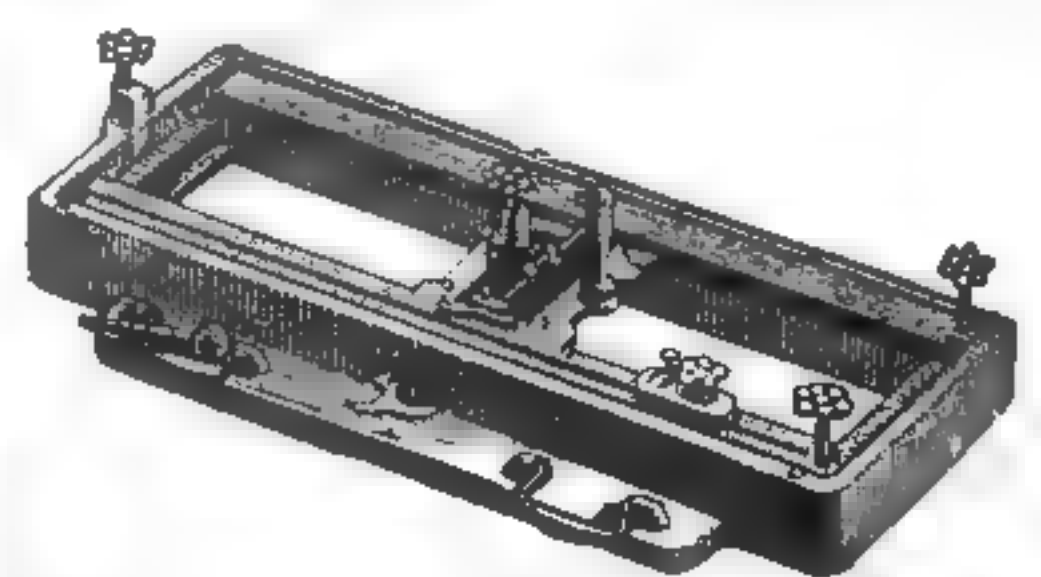
1030 Germantown Avenue, Philadelphia, Penn.



TEETOR'S QUICK ADJUSTABLE DIAMOND DRESSER.



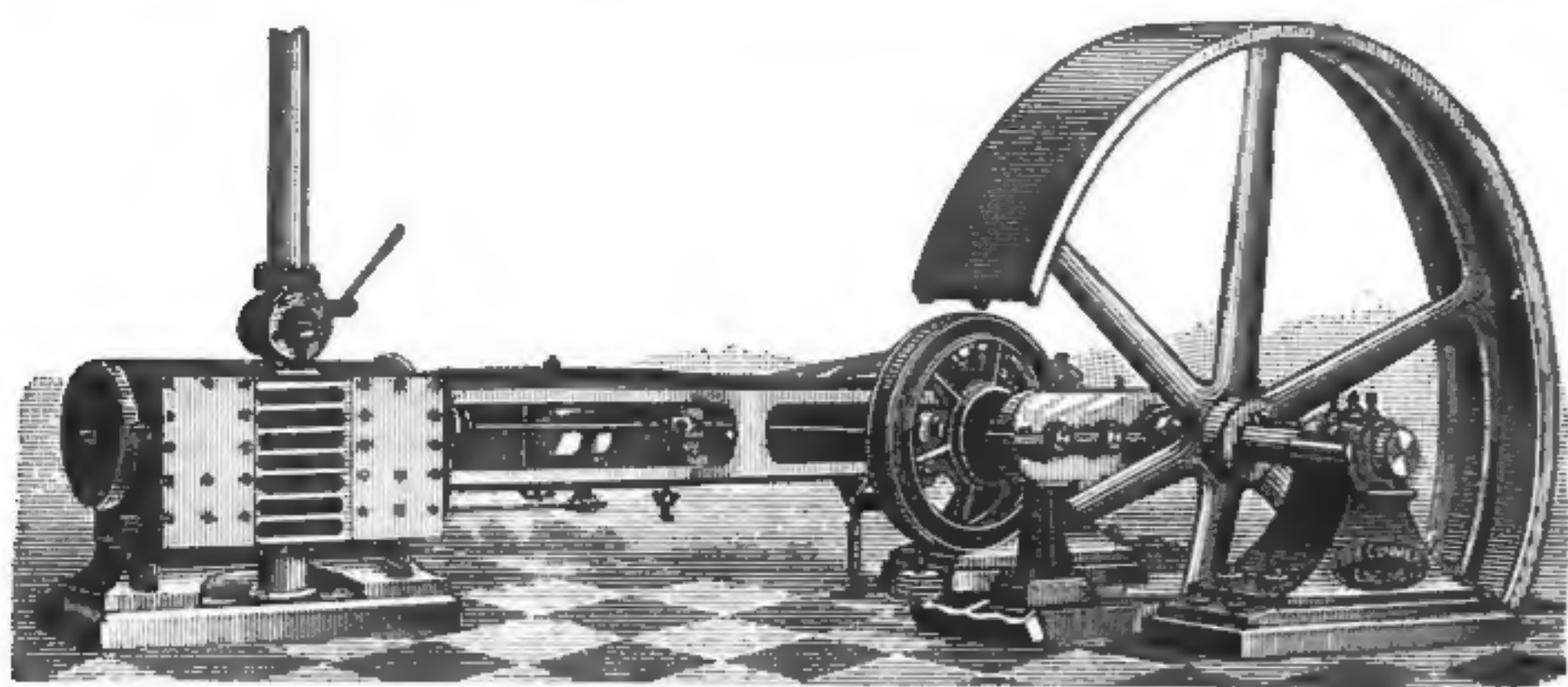
The A Machine. 29 inches long, 18 inches wide. Weight, 140 pounds. Same width carriage as the B machine.



The B Machine. 33 inches long, 19 inches wide. Weight, 165 pounds.

Automatic rod feed. A Revolution. Will cut over 1,000 cuts per inch, right or left, with one or two diamonds for facing. The only Practical feed, especially for deep facing, once going over. No tools required; will Warrant Better Satisfaction, and More Work of all kinds can be done with less trouble than with others. The best of references given. Mechanics are much surprised as to their merit, and say it is "A Revolution." There has never yet been a call for repairs for any one machine. Have been in operation for over four years. Also a Perfect Diamond Holder. See a Machine shown by Thos. Bradford & Co., Exposition, Cincinnati, Ohio. Full descriptive circulars forwarded. Mention this paper.

C. A. BERTSCH, MANUFR., CAMBRIDGE CITY, IND.



THE CUMMER AUTOMATIC ENGINE

IS UNEQUALED IN
Ease of Operation, Effective Duty,
Close Regulation,
In Quick Starting up to Speed,
Uniformity of Speed & Economy of Fuel.

Awarded the Gold Medal at the Cincinnati Exposition, and a special prize for extraordinary merit; also the highest medal at Louisville for the best automatic engine.

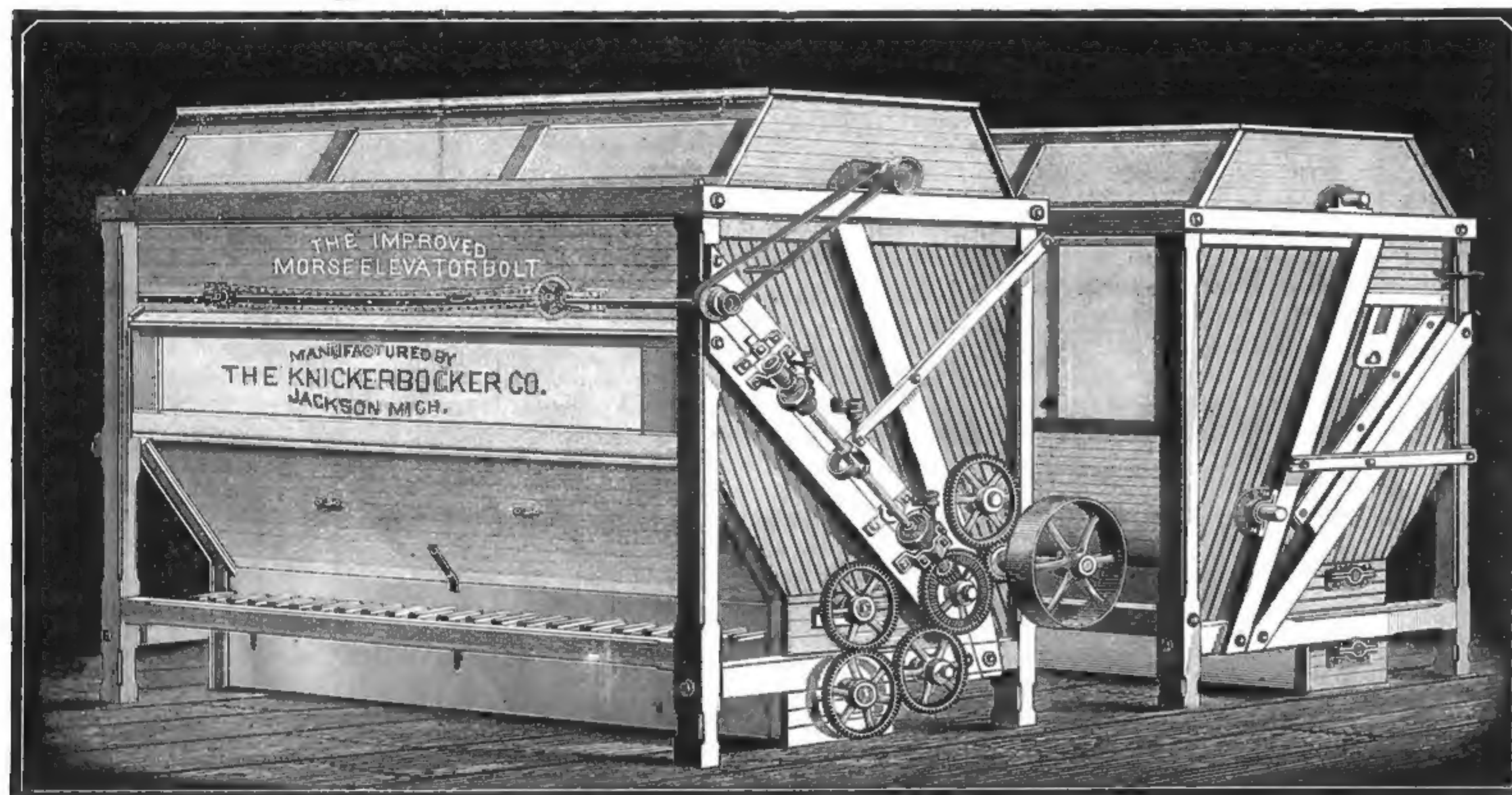
IT IS THE BEST ENGINE MADE.

These are points of importance with every miller and manufacturer who expects prompt, even duty of an engine. Printed matter, cuts, and information promptly furnished on application. Send for our 150 page Illustrated Catalogue.

THE CUMMER ENGINE CO., CLEVELAND, O.

ODELL ROLLER MILLS ARE MADE ONLY BY
STILWELL & BIERCE MFG. CO., DAYTON, O.

The Improved Morse Elevator Bolt.



DEMONSTRATED IN OVER 100 MILLS TO BE THE BEST BOLTING DEVICE KNOWN.

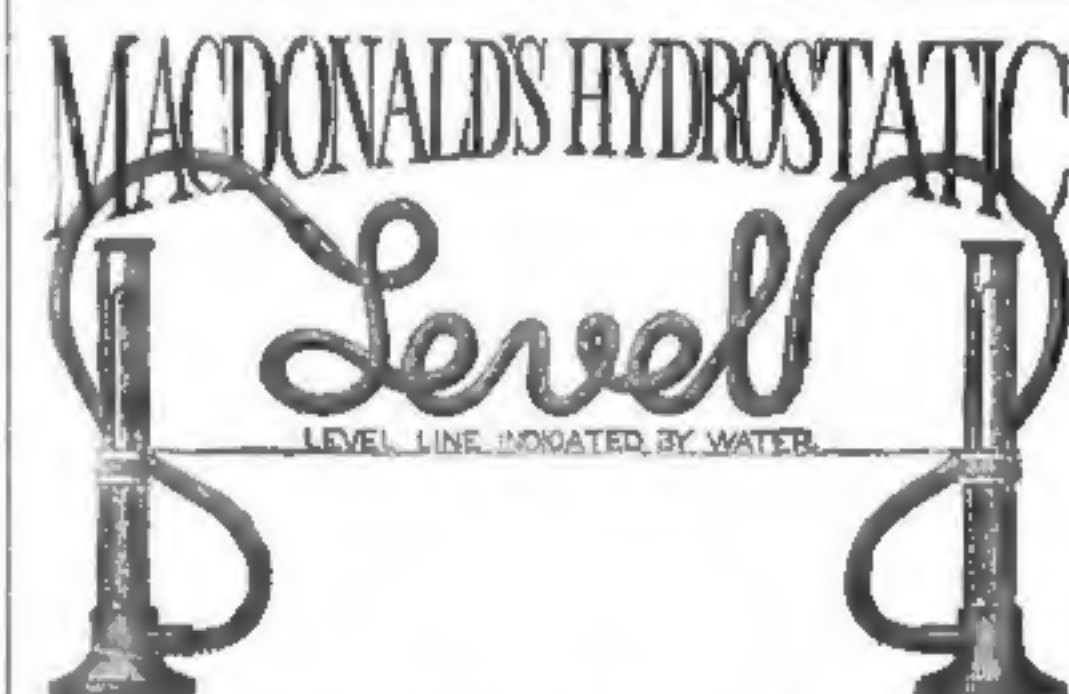
THE KNICKERBOCKER CO., JACKSON, MICH.



A tool for Cutting, Leveling and Polishing the Furrows and Face of Millstones.

Eight inches long, 2 1/2 inches wide, 1 1/2 inches thick. Received the highest and only Award given to Polishers at the Millers' Exhibition, Cincinnati, Ohio, June, 1880. For facing down high places on the burr, this tool has no equal, and can be done much better and in one-sixth the time than with the mill pick. It is much larger, cuts better, can be used on either face or furrow, can be used until the corundum is entirely worn out on one side and then turned on the other side. Has over four times the amount of corundum and when the corundum is worn out can be replaced in the handle at a small cost. Sent by express, \$3.50. Satisfaction guaranteed, or money refunded. Address

HORACE DEAL, Bucyrus, Ohio



Sight-lines, targets, straight-edges and all other fixings, as well as the extra time and help required to work them with the spirit level, done away with by this instrument.

Jas. Macdonald, 55 Broadway, New York.

HE LAUGHS BEST WHO LAUGHS LAST.

WE CONSIDER THE FOLLOWING TESTIMONIALS CONCLUSIVE EVIDENCE THAT

Our Turn to Laugh Heartily and Long Has Come

THE MILLER CO., CANTON, OHIO.

Gentlemen: After using your Machinery and System one year, I desire to say to you and to whom it may concern, that Business I have found nothing to equal your system. My Flour gives general satisfaction and yield is satisfactory.

THE MILLER CO., CANTON, OHIO.

To all whom it may concern with regard to the Miller Co., of Canton, Ohio. I have been using their Rolls and Rider Breaks for about three months, and would say they are the best I know of in the United States. I spent time and money in visiting their mill, and found The Miller Co.'s Breaks and Rolls to make the most even and strongest flour in the market. Their Rider Break Machines are a vast improvement over the Rolls, will make more middlings and less Break Flour than any Roll in the world, and their adjustments on their Roll and Universal tightener, and all are the finest adjustments in use. All you want is to see the machine work to satisfy yourself as to their superiority over all other Rolls. We have beaten all other Roller Flour that has come in our town in quality and color.

NAVARRE, O., Sept. 12, 1884.

in my experience of 18 years in the Flour Yours truly, J. M. CORL.

AUBURN, IND., Sept. 18, 1884.

I have been using their Rolls and Rider Breaks for about three months, and would say they are the best I know of in the United States. I spent time and money in visiting their mill, and found The Miller Co.'s Breaks and Rolls to make the most even and strongest flour in the market. Their Rider Break Machines are a vast improvement over the Rolls, will make more middlings and less Break Flour than any Roll in the world, and their adjustments on their Roll and Universal tightener, and all are the finest adjustments in use. All you want is to see the machine work to satisfy yourself as to their superiority over all other Rolls. We have beaten all other Roller Flour that has come in our town in quality and color.

I. O. BACHTEL.

WATCH FOR NEW TESTIMONIALS AS WE HAVE A SURPLUS.

Order a SAMPLE BAKING from THESE MILLS and CONVINCE YOURSELF of WHAT WE SAY.

THE MILLER COMPANY, CANTON, O.

MANUFACTURERS OF THE RIDER BREAK AND MILLER ROLLER MILLS.

HAS BEEN AWARDED
FIRST AND ONLY PREMIUM
AT THE
Millers' International Exhibition.



Office of THE MILLING WORLD.
Buffalo, N. Y., Sept. 24, 1884.

The impression is getting stronger with each succeeding week, that an attempt will be made by the farmers to hold back wheat, and there are not wanting journals which advocate and recommend this course. Of what avail such action will prove we fail to discern in the face of admittedly lighter requirements upon the part of foreign purchasing countries.

For the present, says the *Commercial Bulletin* of this morning, the wheat market is receiving direction not so much from the bearings ordinarily determining the course of values as from the changing relations of the "long" and "short" interests just now in the process of liquidation. There is some disposition to hammer the wheat market, on the late apathy of exporters in this market, to the overlooking of the fact that exporters are finding better terms at Baltimore, Philadelphia and the West, where they have been buying to the neglect of this market: but to-day exporters have been buying quite freely here. One of the solid facts for the "bulls" is the better wording of the late foreign advices concerning wheat, with an advance of 1¢@2d reported for Liverpool on actual business. Corn in the English markets is said to be dull and declining. The wheat "bears" are commenting upon the increasing interior movement and the stock accumulations, but are afraid to sell on these indications, with the option trading public fickle-minded, but rather inclined to believe that wheat is too low. The export demand for cash wheat is much better here to-day; a good business has been done at an advance, and the market closes firm for the cash property.

The city millers keep busy at \$4.65 filling tropical orders, and getting their fair share of the general trade; a low figure for such flour and one that sets the key for the whole market and tends to accelerate the buying and increase the extent of consumption. State and Western-made flour is arriving none too fast for the demand; if the flour is good there is a ready market for it at current low prices; stocks are not accumulating. We quote; No. 1 extra, \$4.00@6.00; No. 2 extra, \$3.00@3.50; superfine, \$2.75@2.85; fine, \$2.50@2.65; no grade, \$2.10@2.40. Regarded in its entirety, the flour market is steady, with a fair demand. Rye flour is quiet and steady, with \$3.40@3.75 the general selling range, and \$4 occasionally obtained for fancy. Buckwheat flour is in light supply, light demand and nominal at \$2.50@2.75. Corn goods are without quotable change in price, and sales and arrivals keep about an even pace. Mill feed is in moderate demand, with prices showing no quotable change.

FOREIGN EXCHANGE.

The market for sterling was very quiet, and actual rates were rather lower. Bills continue in limited supply, though the offerings of cotton bills are increasing. The posted rates closed at 4.83½ for sixty days' and 4.85½ for demand. The actual rates ranged: At sixty days' sight, 4.82¼@4.82½; demand, 4.84½@4.84¾; cables, 4.85@4.85½, and commercial, 4.80¾@4.81. Continental exchange weak and quiet; francs, 5.22½@5.21½ and 5.20@5.19¾; reichsmarks, 94¼@94¾ and 94½@95; guilders, 39¾@40. The closing posted rates were as follows:

	60 days.	90 days.
London.....	4 88½	4 85½
Paris francs	5 20½	5 18½
Geneva	5 20	5 17½
Berlin, reichsmarks.....	94½	95½
Amsterdam, guilders.....	40½	40½

BUFFALO WHEAT MARKET.

Buffalo, Sept. 23, 1884.

Our wheat market is very dull, there is no speculative demand, and millers are buying only for immediate want. No. 1 hard wheat selling at 87c, and although the receipts are large, holders are firm, and anticipate an advance to 90c; No. 2 hard 83c; No. 1 regular 82@82½c. No. 1 white wheat 83@84c; No. 2 red winter 82c; No. 1 longberry 88@88½c; No. 2 longberry 84@84½c. Corn in good demand for car loads, and holders are firm in their views of the future. The

present corner in Chicago has not affected our market, though receipts are light. No. 2 held at 61½c; No. 3 58c; lower grades 52@55c. Oats few; sales made at 32c. for mixed No. 2; No. 1 white 33½c. No barley or rye on the market.

JAMES S. MCGOWAN & SON.

BUFFALO MARKETS.

FLOUR—City ground clear Northern Pacific spring \$4.75@5.25; straight Northern Pacific spring, \$5.25@5.75; amber, \$5.25@5.35; white winter, \$5.00@5.50; new process, \$6.25@6.75; Graham flour, \$4.25@5.25. Western straight Minnesota bakers, \$5.00@5.25; clear do, \$4.75@5.25; white winter, \$5.00@5.25; new process, \$6.25@6.75; low grade flour, \$2.50@4.00. **OATMEAL**—Ingersol \$5.75; Bannerman's \$6.00; Akron \$6.25. **CORN-MEAL**—Market steady, with a fair demand. Coarse, \$1.15; fine, \$1.25 per cwt. **RYE FLOUR**—In fair demand \$4.00@4.25. **BUCKWHEAT FLOUR**—Demand fair at \$3.50 per cwt. **WHEAT**—Steady and quiet. Sales six car-loads longberry red at 88c on track, and 5,000 bu No. 1 hard Northern Pacific at 87c. At the Call Board 87c asked 88c bid to arrive Sept. and year, 87c asked 88c bid Oct., 90c asked 87c bid Nov., 88c bid Dec. Sales late Monday afternoon 8,200 bu No. 2 red winter at 87½c, and six car-loads No. 1 white do at 84c. **CORN**—Dull. Sales nine car-loads No. 3 at 54c, and five do "special bin" at 56c; for No. 2 at the Call Board 58c, asked cash, 90c asked Oct., **OATS**—Dull. Sale three car-loads No. 2 white at 83c on track. **BARLEY**—Sale six car-loads six-rowed State at 68c on track. **RYE**—No. 2 Western 80c; State 85c.

NOTES.

Gould's new roller mills at Howard, Dak., with a capacity of 100 barrels per day, have started up.

The Washburn Mill Company are building a wheat warehouse to supply the present want at Anoka, Minn.

M. Jones & Son, Beacon, Iowa, have ordered two pair rolls with patent automatic feed from the Case Mfg. Co., Columbus, O.

Farmers of Doland, Dak., are to build a warehouse for their wheat, in order to secure more independence and better prices.

Kerfoot Bros., Des Moines, Ia., have placed an order with the Case Mfg. Co., Columbus, O., for four sets of rolls with patent automatic feed.

The flouring mill of Sieberling Brothers, at Akron, Ohio, was struck by lightning and unroofed by a gale, the damage being \$22,000.

W. McKellop, Perry, Mich., has ordered from the Case Mfg. Co., Columbus, O., one Case improved centrifugal reel and two pair rolls with automatic feed.

H. C. Waite has decided to erect a 200-barrel flouring mill on Sauk river, near "Waite's Crossing," Minn. It is to be a first-class mill with all modern improvements, and will cost \$30,000.

The army-worm has destroyed entire fields of rye in Douglas and Leavenworth counties, Kansas, and is threatening the young winter wheat. Professor Snow, of the State University, recommends the farmers in the infected districts, to sow late, if at all.

The contract of Chas Emke, Fredonia, N. Y., for an outfit of breaks, rolls, purifiers, scalpers, centrifugals, bolting chests, &c., for a full roller mill on the Case system, using twelve pair of rolls, with patent automatic feed, has been placed with the Case Mfg. Co., Columbus, O.

The granary of Mr. W. H. Tanner of Moorhead, Minn., was struck by lightning on Sept. 15, and the whole of one side of the building was torn out. There were six men sleeping in the granary at the time, and although a splinter was torn off one of the bedsteads, not a man was injured.

Mr. McDonald, of Batavia, N. Y., whose mill burned a short time since, expects to build a new mill on the old site very soon. He will rebuild with brick in a thoroughly substantial manner. He has been offered \$10,000 by two parties for the water-power, but refused. His price is \$20,000.

Mr. Nobles, of Oakfield, and Mr. Mackey, of Batavia, have begun the erection of a steam flour and feed mill on Evans Street, in Batavia, N. Y. They have the foundation walls nearly complete and will have a brick building about thirty by fifty-five feet. They expect to begin milling operations before winter.

At New York, September 19, the big flour mill of Wm. H. Payne was destroyed by fire. The mill was a four-story brick building, full of valuable stock and machinery. Loss, \$60,000; covered by a considerable amount of insurance. On the sec-

ond floor of the mill were the offices of three local newspapers, all of which, with their contents, were destroyed.

The La Grange mill at Red Wing, Minn., was sold on Sept. 13 under foreclosure of mortgage to Fred Busch, for the Goodhue County Bank, for \$77,000. The original mortgage was for \$110,000. The mill has cost about \$250,000, and is one of the best in the state, being fitted with modern machinery, and has a capacity of from 1,000 to 1,200 barrels of flour per day.

Geo. M. Brush, who is authority in the matter, says that there is every reason to believe that the Florence flouring mills, lately operated by J. H. Townshend & Co., of Stillwater, Minn., will resume grinding the latter part of September, and that when once started the work will continue through the winter. He is also of the opinion that mill "B," commonly known as the St. Croix mills, will be at work soon.

Robert E. Douglass, C. E., Commissioner appointed by the Dominion government to investigate the report upon the means of dealing with the Canada canal system, has submitted a report which it is understood the government have adopted and will act upon. He thinks the success of the St. Lawrence route depends on the increasing depth of water, and unless the improvements of the St. Lawrence water way keeps pace with the construction of the Canada Pacific railway and the settlement of the country, the trade of the Canadian Northwest will seek foreign channels eastward and southward via St. Paul, Milwaukee and Chicago. The necessary appropriation for deepening the canal fourteen feet will probably be asked at the next session of the Dominion parliament.

The following standards have been adopted by the San Francisco Produce Exchange: No. 1 Chevalier barley shall be plump, bright, sound, clean, reasonably unbroken and free from other grain and seed, not weighing less than 54 pounds to the bushel. No. 2 Chevalier barley shall be of fair color, reasonably clean and sound, not weighing less than 50 pounds to the bushel. No. 1 oats shall be principally white, sound, clean, heavy and reasonably free from other grains and seeds, and not weighing less than 35 pounds to the bushel. No. 2 oats shall be principally white, reasonably clean and of fair weight. No. 1 brewing barley to weigh 47 pounds per bushel; No. 2 brewing barley, 45 pounds per bushel; No. 1 feed, 43 pounds per bushel; No. 2 feed, as per sample of standard, weight unspecified.

A dispatch to the *St. Louis Globe-Democrat* from Lawrence, Kan., of date Sept. 21, says that the ravages of the fall army worm in the winter grain fields of this section still continue. For the past week they have not spread so rapidly as the two preceding, but are appearing in more diverse localities. The brood of which Prof. Snow spoke in his report thereon as perhaps the last of the season is beginning to appear, and promises to be more numerous than it was under any circumstances expected. If the coming week is warm, it is thought they will be out in full force, and should the weather continue pleasant for the coming six weeks, the effect upon all winter grain will undoubtedly be extremely disastrous. Early-sown rye fields of 75 and 100 acres are stripped bare by them. Some farmers are passing heavy rollers over their fields, with very unsatisfactory results. Heavy frost, it is thought, will successfully disperse them.

The flouring mill and cider factory belonging to Volcell Rossie Zudiker, at Morton, Tazewell county, Ill., was totally destroyed Sept. 14 by an explosion of the boilers and fire. The accident resulted in an instant death of engineer Joseph Slage, a boy named Briscler, and two or three others who are supposed to be in the ruins. Christian Ackerman had his skull badly fractured, several ribs broken, and was frightfully scalded. There are no hopes of his recovery. Henry Rosse had his shoulder and arm broken, two ribs fractured, an eye out, and was badly scalded. He will die. George Lowman was scalded beyond all hope of recovery. In addition to this several were very seriously scalded and bruised. The cause of the explosion is supposed to be due to the carelessness of the engineer. He allowed the water in his boilers to run very low, and having no hot water in his reservoir pumped in cold water. The loss on the building will be about \$15,000.

Advices from Mexico, Mo., of date Sept. 21, are to the effect that a diminutive insect, known to the wheat raisers as the "midge," has just been discovered to exist in nearly, if not all, the grain harvested in that county, and several families who

FIRST AND ONLY PREMIUM
OVER ALL COMPETITORS!
PURCHASE ONLY
FROM RELIABLE DEALERS.

have eaten of bread made from this year's wheat are now down in bed violently sick from partaking thereof. There was scarcely a single field of wheat, it is said, harvested in this section that did not contain some proportion of grain that had been blighted by this pest. The *Intelligencer* says: The midge attacks the ripening grain while in the milky state, more frequently beginning at or near the top of the head and working downward to, or near the middle—the progress of the destroyer being so slow that in most cases the grains in the lower portion of the head are ripened before reached by the midge. The grains thus attacked vary in appearance—owing to the stage of development at the time of the attack. Some are entirely white, shriveled, and present a chalky appearance; others reddish-brown, and some entirely black. These blighted grains contain a substance which, if not an active poison, is at least very deleterious to health. The only way to separate the bad from the good is by thorough screening—putting on the wind power until the blighted grains, which are lighter, are blown away. In a number of tests already made this process has materially decreased the quantity, as turned out by the ordinary wheat-fan process, but it gives material for wholesome flour, and should be rigidly adhered to in every instance where the presence of midge-blight is known or suspected.

At Vincennes, Ind., Sept. 30, an explosion occurred which demolished the flouring mill of Emison & Callender, and fatally injured the engineer, Thos. Childress. The unsafe condition of the boiler was the cause. Childress was standing close to the boiler drawing a bucket of water, and had just been talking to John P. Callender, when the boiler let go. Every vestige of the engine room except a few splinters and broken bricks was swept away. A part of the boiler scraped up in the end of the mill, breaking in the siding from the first floor to the comb of the fourth story roof, after which it went clear over the building and fell in the street, a square away. The main portion of the boiler went through a warehouse packed with five tiers of flour, scattering it in every direction. The head of another portion flew in an opposite direction, one heavy piece going over and falling close to a little dwelling, the other going through a stable belonging to the milling firm, setting it on fire and burning it down. Smith Manning, an employee, jumped out of a third story window to the roof of a shed and escaped with slight injury. John Callendar, who was near the engine room door, was knocked down by debris and blown across the room and considerably bruised. The interior of the mill is a wreck, the frame on the opposite side from the engine room being bulged out six inches. The damage to mill being estimated at \$10,000. Childress, the engineer, was literally cooked. His eyes were blown out, both legs broken, and when his clothes were taken off skin and pieces of flesh came with them. He was conscious a long time, and told the doctors that he was carrying eighty pounds of steam, that amount being required to run the mill. The boiler leaked and was very old. The story goes that Ward was sent by the proprietors to a foundryman to come out and do some work on it that afternoon, and that the foundryman refused, as he had patched it all that it would stand, and that Ward being sent to another foundryman, two boiler-makers were on their way to the mill when the explosion occurred. Examination discloses the fact that in many places the boiler was burned very thin. The mill was not insured against such an accident. Childress is well known in railroad circles. He leaves a wife and three children.

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Gentlemen: In regard to the workings of our new mill erected by you, will say it is working fully up to and beyond our expectations. Our average work is fully 88 per cent. over your guarantee. Since starting our mill last July we have had no complaint of our flour from any market where sold. It gives universal satisfaction, and we have it scattered on the trade from Chicago to Galveston, Texas. Our yields are all that are attainable. We have tested it on both Spring and Winter wheats with satisfactory results on both varieties. Since the mill was turned over to us we have not changed a spout or a foot of cloth, nor have we found it required to make any changes. We have run as long as six days and nights without shutting steam off the engine, not having a "choke" or a belt to come off. The mill is entirely satisfactory to us, and for a fine job of workmanship, milling skill and perfection of system, we doubt if it is surpassed in the United States to-day. It is certainly a grand monument to the ability and skill of Col. C. A. Winn, your Milling Engineer and Designer. You may point to this mill with pride and say in competitors, "You may try to equal, but you will never beat it." Wishing you the success that honorable dealing deserves, I am,

OFFICE OF DAVIS & FAUCETT MILLING CO.,
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Yours, etc., R. H. FAUCETT, PRES.

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Gents: We started up our mill in June last year, and it gives us pleasure to say that your Roller Mills are doing splendid work and give us no trouble. Your milling program required no changes, and concerning yields, we get all the flour from the offals, and we sell our best grades in the principal markets of the United States at the highest prices offered for any flour. All the machinery made by you is first-class, and we would not know where to purchase as good.

OFFICE OF DAVID SUPPGER & CO.,
HIGHLAND, ILL., Jan. 10, 1884.

Yours respectfully, DAVID SUPPGER & CO.

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NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gentlemen: The 125 barrel All Roller mill you built us has been running all summer, and does its work perfectly. Before contracting with you for this machinery we visited many Roller Mills throughout the West and Northwest, built by the different leading mill-furnishers, and from all we could see, those built by you seemed to be giving the best satisfaction, and this is why we bought our machinery of you. Our mill comes fully up to your guarantees, and the capacity runs over your guarantee. The bran and offal is practically free from flour, and our patent and bakers' flour compares favorably with any we have seen elsewhere. I don't think anyone can beat us. Your Roller Machines are the best we have seen; they run cool, and the interior does not sweat, and cause doughing of the flour. Judging from our success, we would recommend other millers to place their orders with you.

LAPEL, MADISON COUNTY, IND., Jan. 10, 1884.

Yours truly, J. T. FORD.

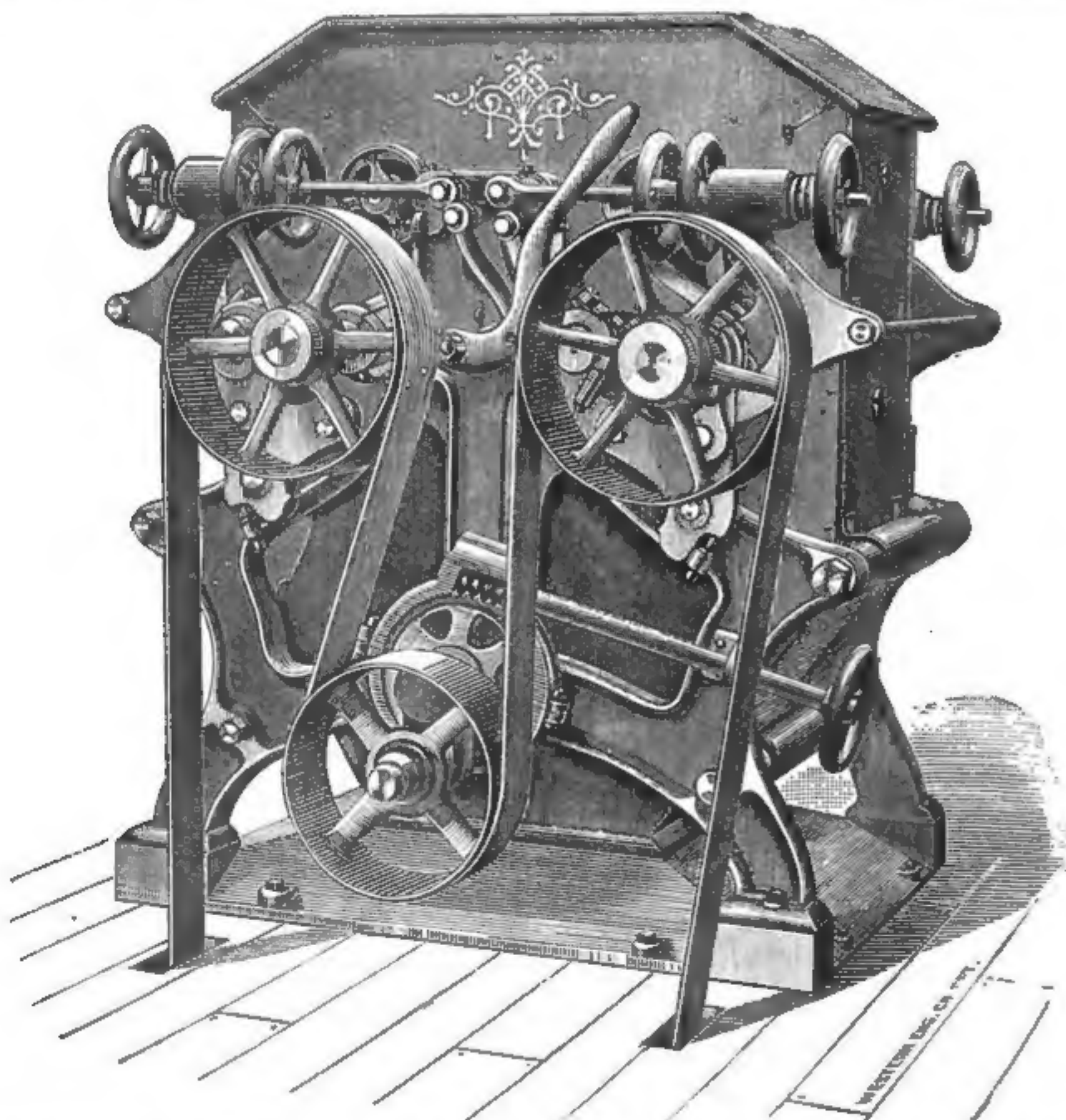
Letters on file in our office from a large number of small roller millers giving as favorable reports as above. A portion will be published as occasion demands.

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Motive Power and Entire Equipment of a Modern Mill Furnished under one Contract.

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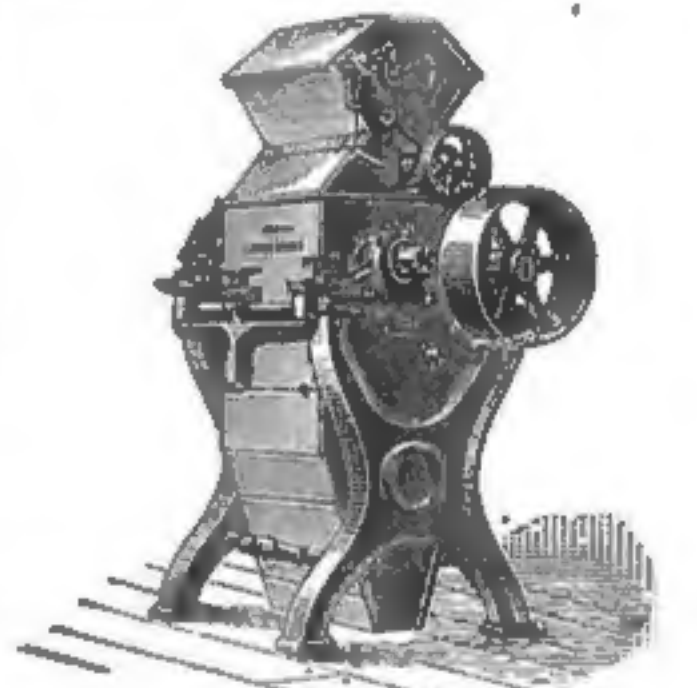
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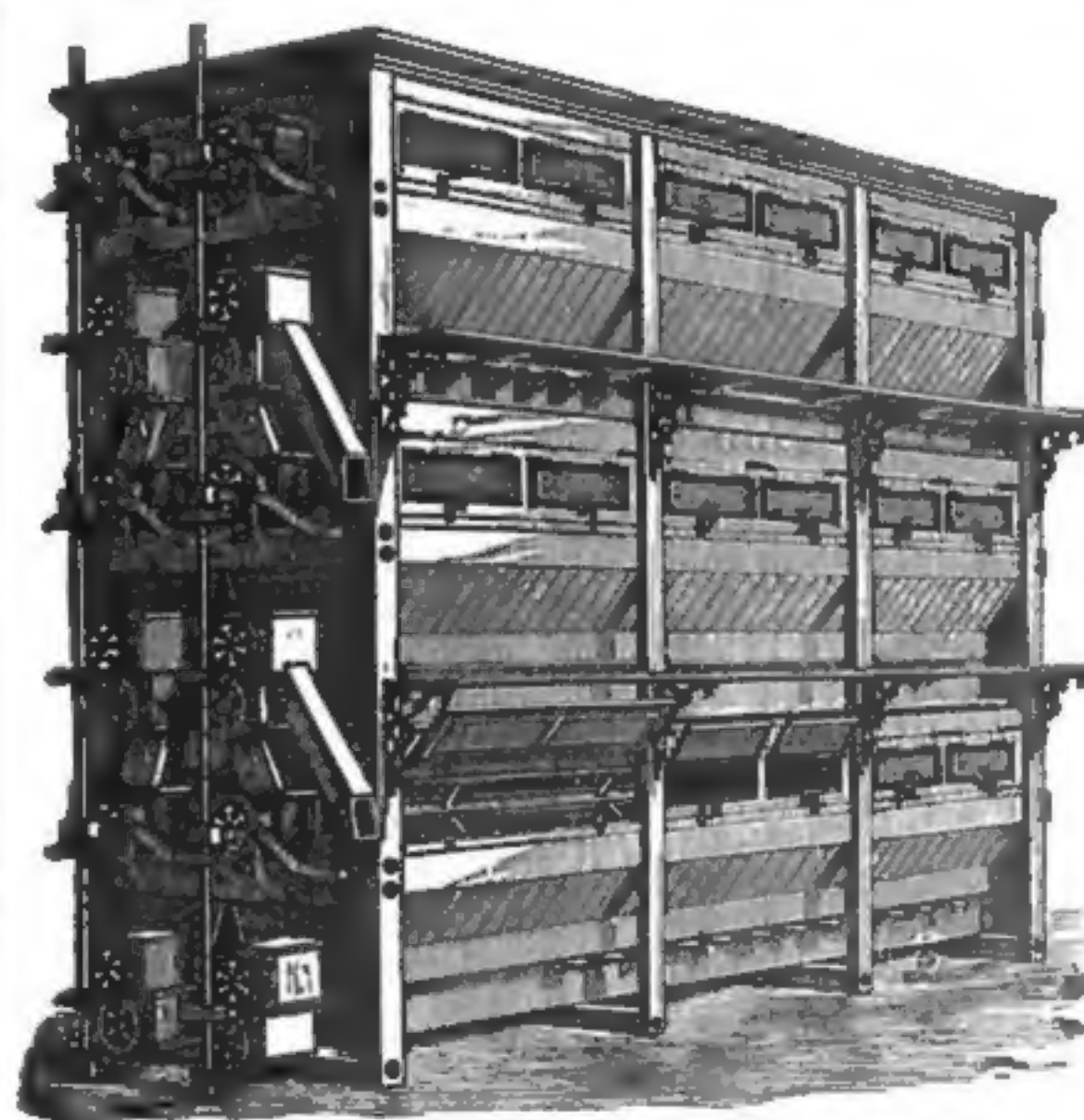
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